Control and Remote Control Software

CCRS 1000

V.55

for head-end station system CSE 3300

Art. Nr. 325182 GB

Operating Instructions

TRIAX - your ultimate connection

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2 General information

2.1 Meaning of the used symbols

⚠ Important note

—> General note

• Performing works

—> The shown illustrations of menus are partly dependent on the cassettes resp. its software versions as well as the used operating system and its settings.
Variations are possible.

2.2 Description

The CCRS 1000 software allows to configure, record and store the settings of head-end stations / plants of the head-end station system CSE 3300 online as well as off-line.

—> **All settings (with exception of the "direct control via the virtual control unit") first will be done in the CCRS 1000 software (random access memory – RAM of PC) and must be finally transferred to the plant ("send data")!**

All current cassettes and head-end stations of the of the head-end station system CSE 3300 can be controlled with a PC directly via the serial COM port interface of the head-end station, or remote controlled via a modem, a GSM mobile phone or via Ethernet by using a corresponding management system.

Software updates:
Always keep the software versions of the head-end stations and the CCRS 1000 up-to-date in order to be able to configure also the newest products.

—> The most recent version can be downloaded from "www.triax.com".
—> Software updates for head-end stations and cassettes can be done with the BEflash software.

2.3 PC SYSTEM REQUIREMENTS

System requirements for the CCRS 1000 software:

– Microsoft .NET Framework 3.5 (can be downloaded from Microsoft free of charge).

> —> During the installation of the CCRS 1000 it is checked whether .NET F 3.5 is installed in the system, and if not the download from Microsoft will be offered. Without this, CCRS 1000 can not be installed!

– Supported operating systems (32/64 Bit): Windows Server 2003, Windows Server 2008, Windows Vista, Windows XP, Windows 7; Windows 8.
– Processor: 400 MHz Pentium Processor or equivalent (Minimum); 1GHz Pentium Processor oder equivalent (recommended).
– RAM: 96 MB (Minimum); 256 MB (recommended).
– Hard Disk: 500 MB free hard disk space.
– Display: 800 x 600, 256 colours (Minimum); 1024 x 768 high color, 32-bit (recommended).
– LAN interface (RJ-45 socket, for remote control via Ethernet).
– Serial interface (RS-232 Sub D, for in-situ operation) .

> —> For PCs with USB connector (without serial interface), we recommend the DeLOCK "USB 2.0 to Serial adapter" (Product No. 61460).

– Network/Internet access for downloads and remote control via Internet.

2.4 Required Hardware

Only one head-end station can be configured without a management unit. For in situ configuration of the head-end station the PC must be connected to the control unit (RS-232 cable). The head-end station can be remote controlled if a modem is connected to the control unit (BE-Remote) and the modem function is activated in the control unit (see page 43).
In order to remote control more than one head-end stations of a plant via the CCRS 1000 software following additional hardware is required (dependent on the kind of connection "router with Internet access" or "modem with phone connection"):

– Management system CCRC 2 for remote control via Ethernet of up to two head-end stations or one head-end station + monitoring cassette CCMC 6000 or backup system CCB 16/8,

or

– management unit CCRC 8 for remote control via Ethernet (requires an additional LAN adapter CCLA) or modem of up to 8 head-end stations, resp. monitoring cassette CCMC 6000 or backup system CCB 16/8.

Overview:

	Number of controllable components	CCMC 6000	CCB 16/8	In situ control via COM port	Remote control via modem	Remote control via GSM phone	Remote control via LAN (Internet)
CCRC 2	2	•[1])	•[1])	—	—	—	•
CCRC 8	8	•	•	•	•	•	•[2])
BE-Remote	1	—	—	•	•[3])	•[3])	•[2])[3])

[1]) CCMC or CCB
[2]) requires an additional LAN adapter CCLA
[3]) requires a modem adapter (page 18)

3 INSTALLING THE SOFTWARE ON A PC

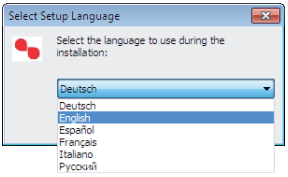
3.1 KEY CODE (ACTIVATION CODE) FOR THE SOFTWARE

A key code is required for the activation of the CCRS 1000 software.

3.2 INSTALLING THE SOFTWARE

You will find the CCRS 1000 software on the CD attached.

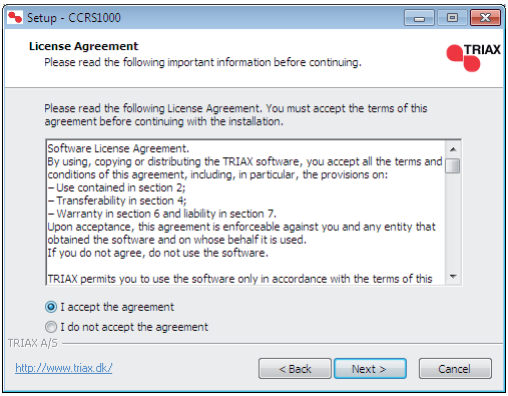
- Unzip the "CCRS1000_Vxx.zip" file and start the "setup_CCRS 1000_Vxx.exe" programme by a double click.
- Select the desired language and click the **OK** button to confirm.



- Select the desired language and click the **OK** button to confirm.

Setup - CCRS1000
Welcome to the CCRS1000 Setup Wizard
This will install CCRS1000 on your computer.
It is recommended that you close all other applications before continuing.
Click Next to continue, or Cancel to exit Setup.
http://www.triax.dk/
Next >
Cancel

- Start the setup wizard using button "**Next >**".


Setup - CCRS1000
License Agreement
Please read the following important information before continuing.
TRIAX
Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.
Software License Agreement.
By using, copying or distributing the TRIAX software, you accept all the terms and conditions of this agreement, including, in particular, the provisions on:
– Use contained in section 2;
– Transferability in section 4;
– Warranty in section 6 and liability in section 7.
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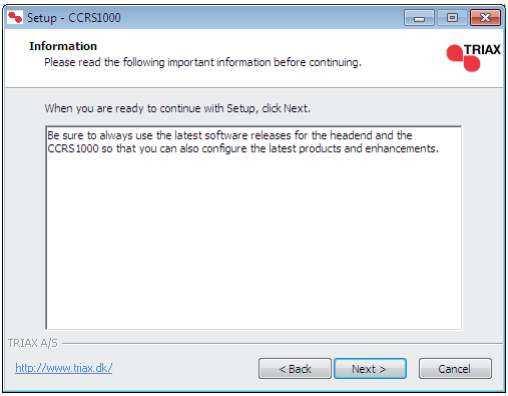
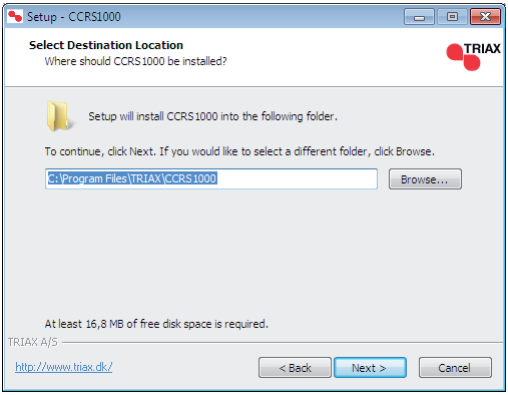
If you do not agree, do not use the software.
TRIAX permits you to use the software only in accordance with the terms of this
I accept the agreement
I do not accept the agreement
TRIAX A/S
http://www.triax.dk/
< Back
Next >
Cancel

- Read the license agreement.
- If you accept the license agreement select "**I accept the agreement**" and click the "**Next >**" button.

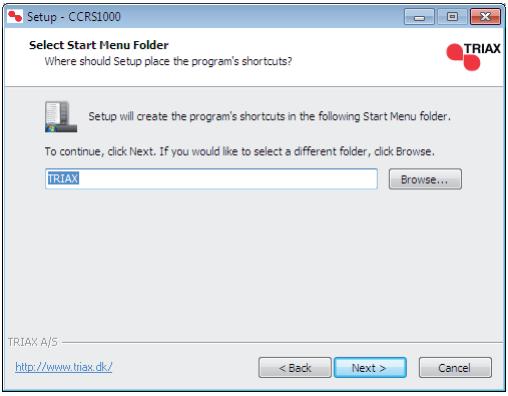

Setup - CCRS1000
Information
Please read the following important information before continuing.
TRIAX
When you are ready to continue with Setup, click Next.
Be sure to always use the latest software releases for the headend and the CCRS1000 so that you can also configure the latest products and enhancements.
TRIAX A/S
http://www.triax.dk/
< Back
Next >
Cancel

—> Keep the software version of the CCRS 1000 always up-to-date in order to be able to remote control also the newest products.
—> After installing the CCRS 1000 software, update the software for the cassettes if necessary.

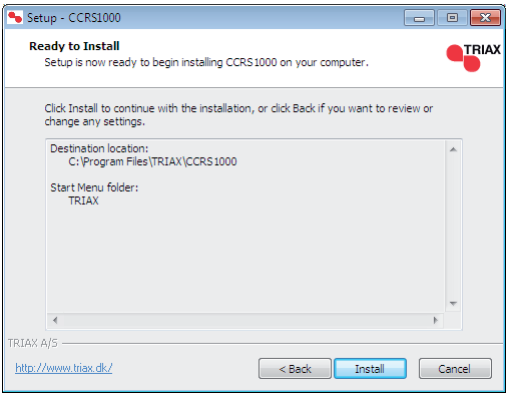
- Click the "**Next >**" button.


Setup - CCRS1000
Select Destination Location
Where should CCRS1000 be installed?
TRIAX
Setup will install CCRS1000 into the following folder.
To continue, click Next. If you would like to select a different folder, click Browse.
C:\Program Files\TRIAX\CCRS1000
Browse...
At least 16,8 MB of free disk space is required.
TRIAX A/S
http://www.triax.dk/
< Back
Next >
Cancel

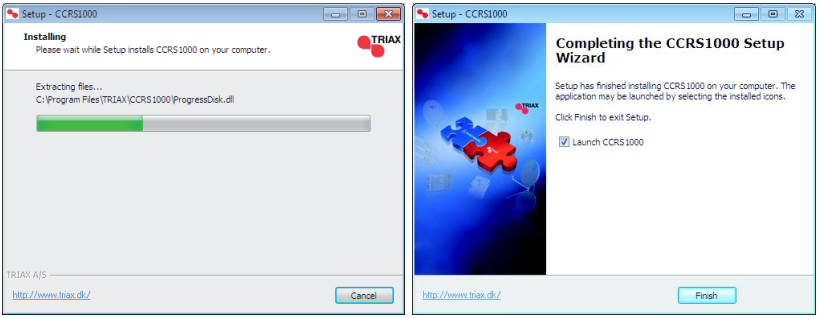
- Specify the directory in which the CCRS 1000 should be installed (e.g. C:\Programme\TRIAX\CCRS 1000).
- Click the "**Next >**" button.


Setup - CCRS1000
Select Start Menu Folder
Where should Setup place the program's shortcuts?
TRIAX
Setup will create the program's shortcuts in the following Start Menu folder.
To continue, click Next. If you would like to select a different folder, click Browse.
TRIAX
Browse...
TRIAX A/S
http://www.triax.dk/
< Back
Next >
Cancel

- Enter a name for the shortcut to the programme which will be created in the start menu.
- Click the "**Next >**" button.



- Click on "**Install**" in order to proceed with the installation of the programme, or on "**Back**" to make corrections or changes.



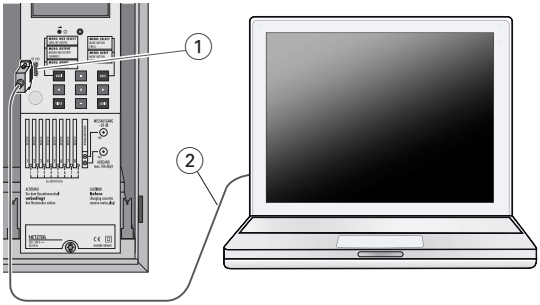
—> The installation progress is shown.

- Click on "**Finish**", to complete the installation.

4 BASIC CONFIGURATION OF THE PLANT

4.1 IN SITU OPERATION (DIRECT CONNECTION)

Via direct connection it is possible to control the head-end station more comfortable than via the control unit. In addition the configuration can be stored on the PC.

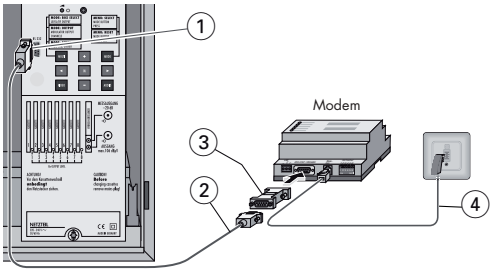


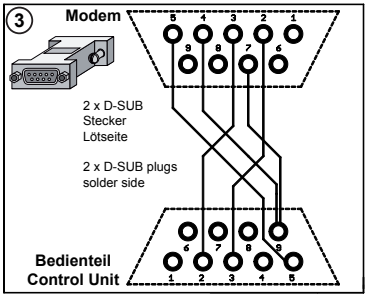
- Connect the RS-232 interface (1) on the control unit with the serial interface (e.g. COM 1) on the PC using the supplied cable (2).

—> For PCs with USB connector (without serial interface), we recommend the DeLOCK "USB 2.0 to Serial adapter" (Product No. 61460).

4.2 REMOTE CONTROL VIA MODEM WITHOUT MANAGEMENT SYSTEM

Head-end stations can be remotely configured if a PC with a modem is used (alarm messages, timer function and the control of a backup system are not possible). If a GSM modem is selected, the control unit transmits the PIN to the modem. It is also necessary to set the PIN for the SIM card to "0000".





- Plug the connection cable (2) into the RS-232 interface on the control unit (1).
- Plug the cable (2) into the modem adapter (3) and tighten the fastening screws.
- Plug the modem adapter (3) into the serial interface (RS 232) on the modem and tighten the fastening screws.

—> Connection cable and modem adapter are available on request.

- Using a standard telephone cable (4), connect the modem to a phone jack (only for analogous modem).
- Activate the modem operation via the menu of the control unit for the head-end station.

—> Therefore observe the assembly instruction of the head-end station.
—> **Deactivate modem operation (OFF) in order to remote control via a management unit or to control in situ (PC is connected directly).**

4.3 REMOTE CONTROL VIA MANAGEMENT SYSTEM

The basic configuration of the plant depends on the kind of connection (Internet, phone, RS-232) and the management system used.
It must be done during the installation of the management system and is therefore described in its assembly instruction.

5 CONNECTION TO THE PLANT

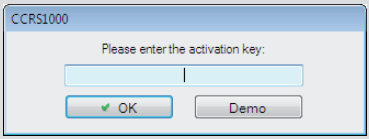
5.1 REQUIREMENTS

The basic configuration of the used management system must already be done during its assembly.

—> Therefore observe the assembly instruction of the management unit.

- Start the CCRS 1000 software.

—> A key code is required for the activation of the programme.



—> Via the "Demo" button a Demo Version with limited functions can be started. "Export", "Save plant", "Print plant", "Control unit" as well as "Send data" are locked.

- Click the "OK" button when entered the 25 key code.

—> Via menu **Extras > Language** select the language of the menus.

—> Via menu **Help > Help** you reach the operating instruction (PDF). The menu **Help > Info on CCRS 1000** shows the software version.

5.2 Connection via COM port (in situ connection)

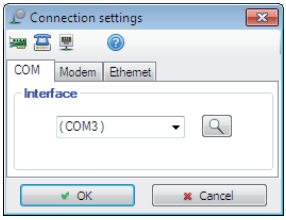
(not possible with CCRC 2)

- Click the button.

—> The "Connection settings" window is activated.

- Select tab "COM".

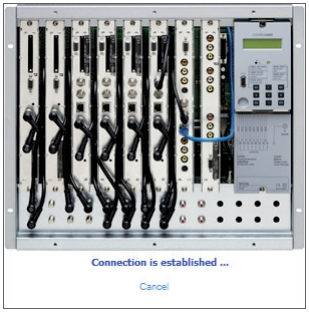
—> All in your system existing Com ports are listed. If there are no interfaces shown, start a search with button .



- Select the corresponding COM port.

—> Via the **Windows Device Manager > Ports** (button) you get information about the COM port which is used by an USB-RS-232 adapter.

- Click on button "OK".

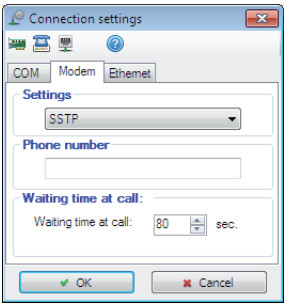


—> The connection will be activated.
—> The connecting button changes from to .

5.3 Connection via Modem

- Click the button.

—> The "Connection settings" window is activated.



- Select tab "Modem".
- At "Settings" select the connection protocol which corresponds to your modem connection installed at your PC.
- At "Phone number" enter the phone number of the modem which is connected to the management system / head-end station.
- If necessary enter the "Waiting time at call" for call and recall.
- Click on button "OK".

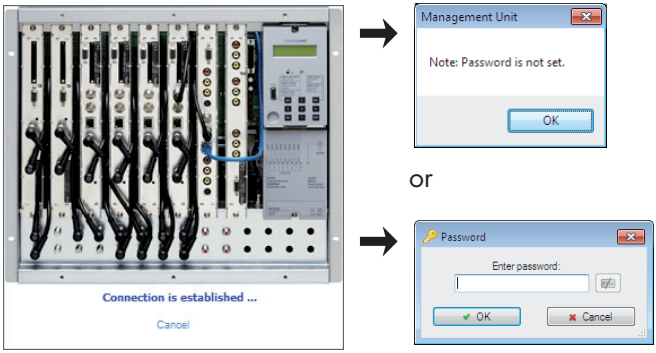
—> At connection via modem the phone status is shown.

Modem connection to the control unit:

—> If the modem is connected **directly** to the control unit of a head-end station (via a modem adapter), no password is requested.
—> The connection will be activated.
—> The connecting button changes from to .

Modem connection to a management system:

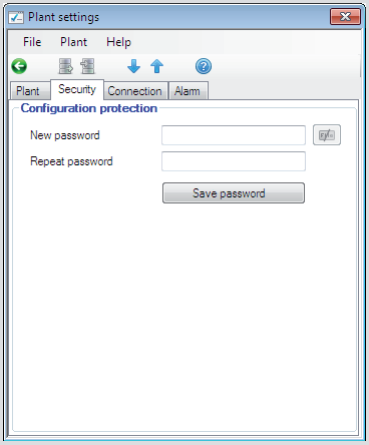
—> If the modem is connected to a management system, a password will be requested (if set).



- If a password was set before enter the password (case-sensitive).
- Click on button "OK".

—> The connection will be activated.
—> The connecting button changes from to .

—> The password setting is to be done in menu **Plant settings > Security** (page 82).

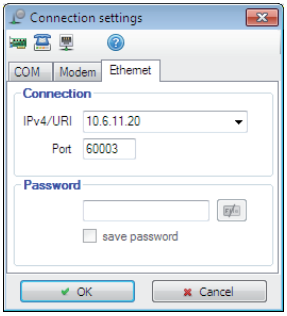


5.4 Connection via Ethernet

- Click the button.

—> The "Connection settings" window is activated.

- Select tab "Ethernet" and enter
  - at a connection via a **local network** the IP address and the port of the management system e.g. IP **192.168.0.120** and port **60003**.
  - at a connection via the **Internet** the "external" (public) IP address of the router or its "dynamic DNS account" and the port of the router, for which port forwarding to the management system is configured e.g. IP **212.20.172.0** and port **59999**.



—> For remote control via Internet the router of the management unit must be connected to the Internet. In addition its "public" IP address with which it is connected to the Internet must be known.
—> Port forwarding must be set for the port you set during LAN configuration at the router of the management unit.
—> Observe the operating instructions of the router.

Connection via LAN adapter:

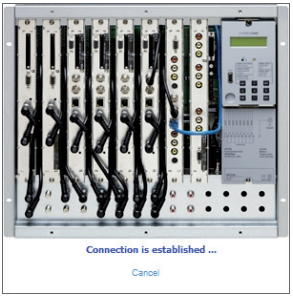
- Klicken Sie auf die Schaltfläche "OK".

—> If the connection is done via a LAN adapter which is connected **directly** to the control unit of a head-end station (via a modem adapter), no password is requested.
—> The connection will be activated.
—> The connecting button changes from to .

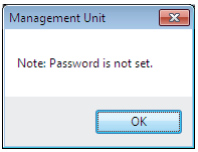
Connection via a management system:

—> If the modem is connected to a management system, a password will be requested (if set).

- If a password was set before enter the password (case-sensitive).
- Click on button "OK".



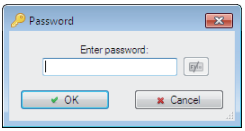
If no password is set, the following message appears:



- Click on button "OK".

—> The connecting button changes from to .

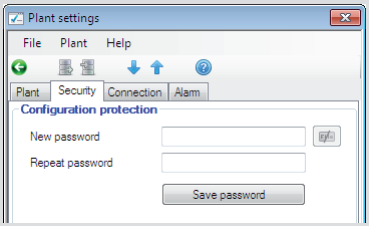
If you have entered a wrong password, the following message appears:



- Enter the password (case-sensitive).

—> The connecting button changes from to .

—> The password setting is to be done in menu **Plant settings > Security** (page 82).



6 CONTROLLING THE PLANT

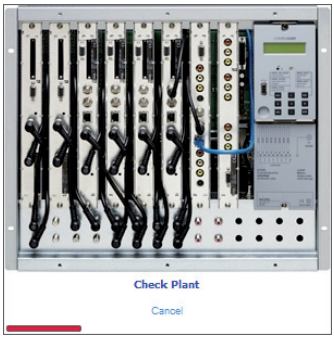
—> **Functions/settings, currently not available (e.g. management unit does not support this function etc.) are disabled.**

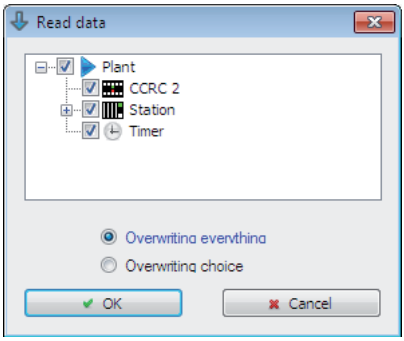
—> **All settings (with exception of the "direct control via the virtual control unit") first will be done in the CCRS 1000 software (random access memory – RAM of the PC) and must be sent finally to the plant ("send data")!**

6.1 READ DATA (CONFIGURATION)

Via this function the current configuration of the plant can be imported into the programme.

- Click the button.





- Select which data should be imported.

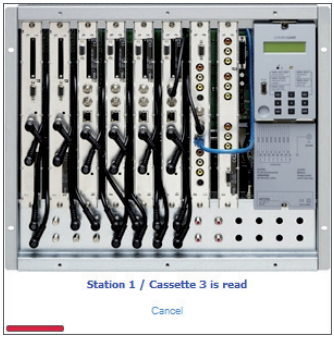
—> Individual cassettes can be shown by symbol "+" ( ) for individual selection.

- Select whether "everything", or only the selection (choice) should be overwritten.

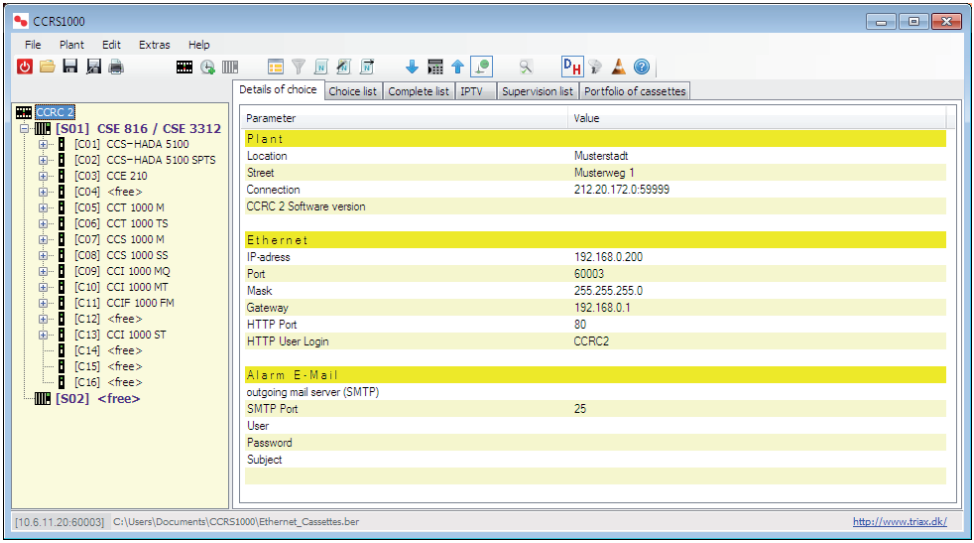
—> For example: If only one cassette together with "overwriting everything" is selected, all the data of the other cassettes will be deleted in the configuration data of the PC.

- Click on button "OK".

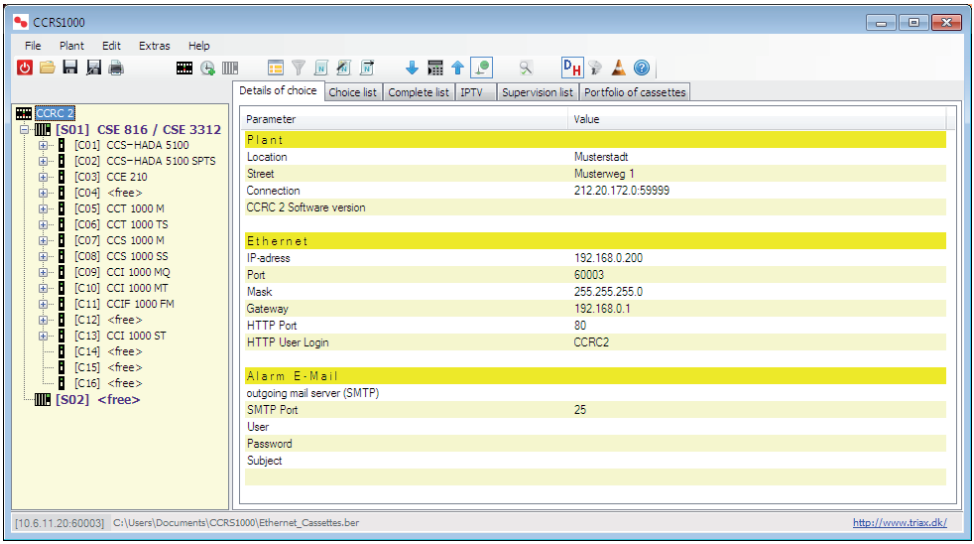
—> The selected data will be imported.



—> After reading the main window of the plant is shown. e.g. ...



6.2 START PAGE

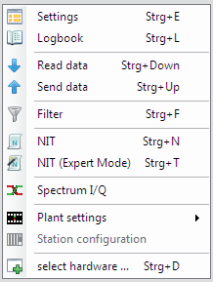


In the left window (tree chart) the hardware configuration of the plant is shown. Herein select the component of the plant, whose settings you would like to modify resp. about which you would like to get information.
Dependent on the selected tab the right window shows…

- detailed information ("Details of choice", Page 28) or
- basic information ("Choice list" Page 29) of the components selected in the left window, or
- basic information ("Complete list" Page 30) of all fitted cassettes, or
- IP information ("IPTV" Page 31) of all fitted cassettes, or
- the supervision list (Page 96) at installed monitoring cassette, or
- an overview of all compatible components ("Portfolio of cassettes" Page 35) for plannings, search function included.

—> A "Right click" on a component opens its "context menu".

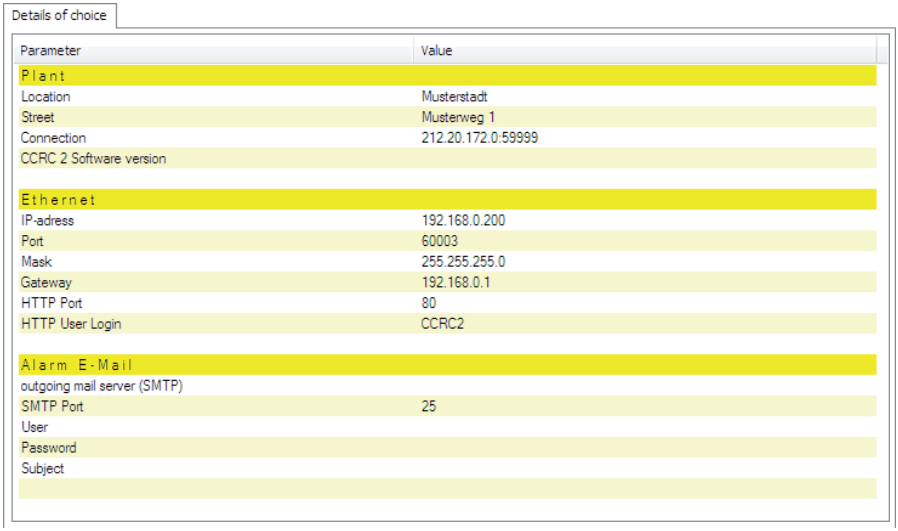
Herein you have access to the settings of the component.



The following explains the individual tabs:

—> The buttons of the toolbar are described at its corresponding menus.

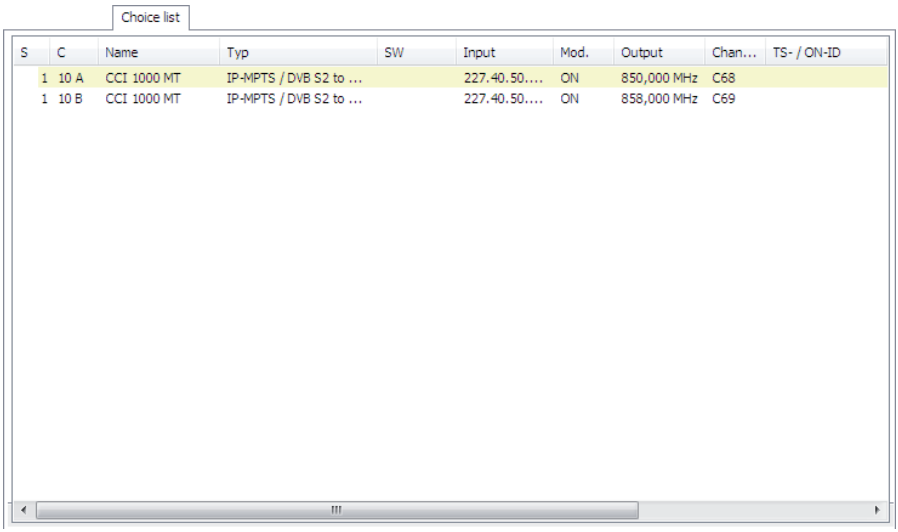
TAB "DETAILS OF CHOICE"



In tab "Details of choice" you get general information about a component selected in the tree chart.

—> The management system was selected in this example.
—> The software version is only shown if the configuration was read out from the plant.

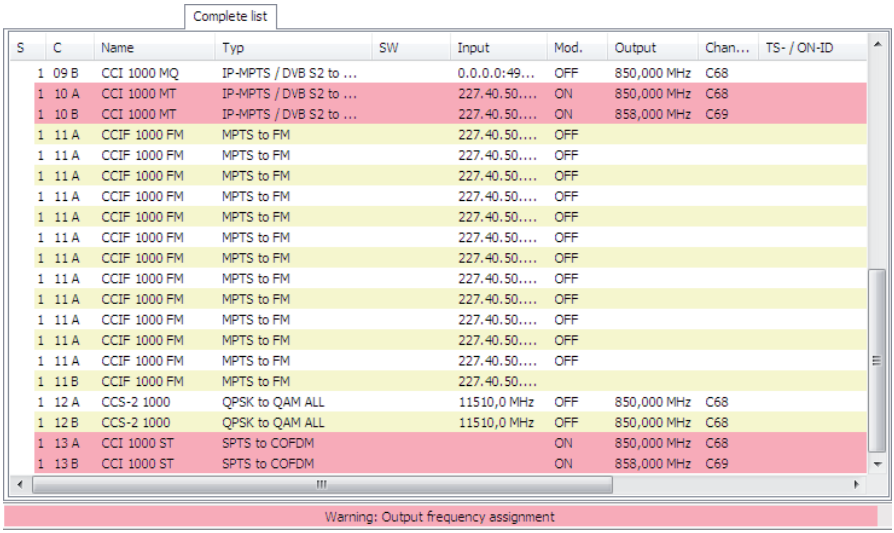
TAB "CHOICE LIST"



In tab "Choice list" you get an overview about the settings of a component selected in the tree chart.

—> Cassette 10 of station 1 was selected in this example.
—> When you call the list the system is checked for conflicts.
If Output frequencies are assigned twice, a warning flashes and the affected cassettes are highlighted.
—> Using the context menu, you can directly access the settings of the affected cassette.
—> **The changes do not take effect until they are sent to the plant** .

TAB "COMPLETE LIST"



In tab "Complete list" you get an overview about all cassettes of the plant.

—> When you call the list the system is checked for conflicts.
If Output frequencies are assigned twice, a warning flashes and the affected cassettes are highlighted.

—> You can change the sort order by clicking to the corresponding column headings. For example, if you will click to the column heading "Output", all cassettes with the same output frequencies (conflicts) will be shown together.

—> Using the context menu, you can directly access the settings of the affected cassette.

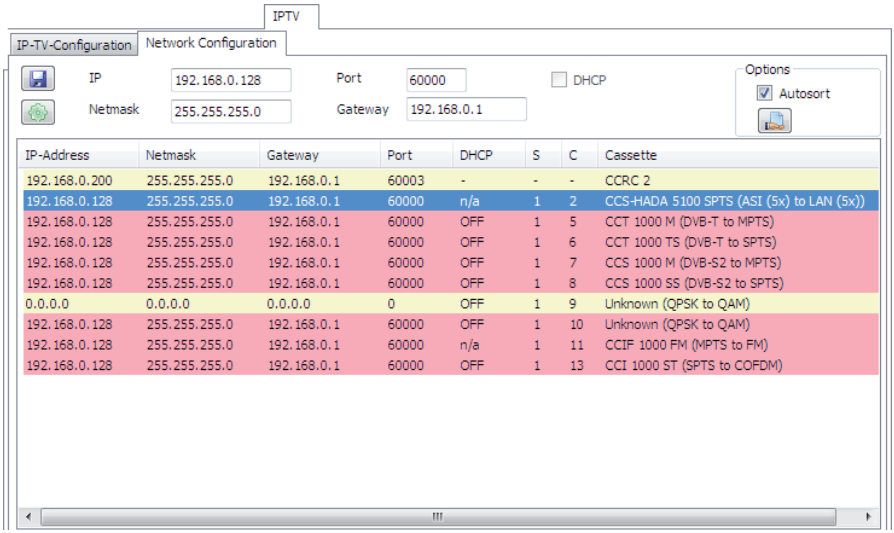
—> **The changes do not take effect until they are sent to the plant** .

Tab IPTV

Hardware IP Addresses (Network Configuration)

In tab "Network Configuration" you get an overview about the hardware IP addresses of the plant.

Example: IPTV addresses with conflicts



—> **"Hardware" IP addresses, over which the components are connected in the network (e.g. 192.168.0.x) must be within the "private" range from 10.0.0.0 to 10.255.255.255, 172.16.0.0 to 172.31.255.255 resp. 192.168.0.0 to 192.168.255.255.**

—> When you call the list the system is checked for conflicts.
If IP addresses are assigned twice, a warning flashes and the affected addresses are highlighted.

—> You can change the sort order by clicking to the corresponding column headings. For example, if you will click to the column heading "IP-Address", all cassettes with the same IP address (conflicts) will be shown together.

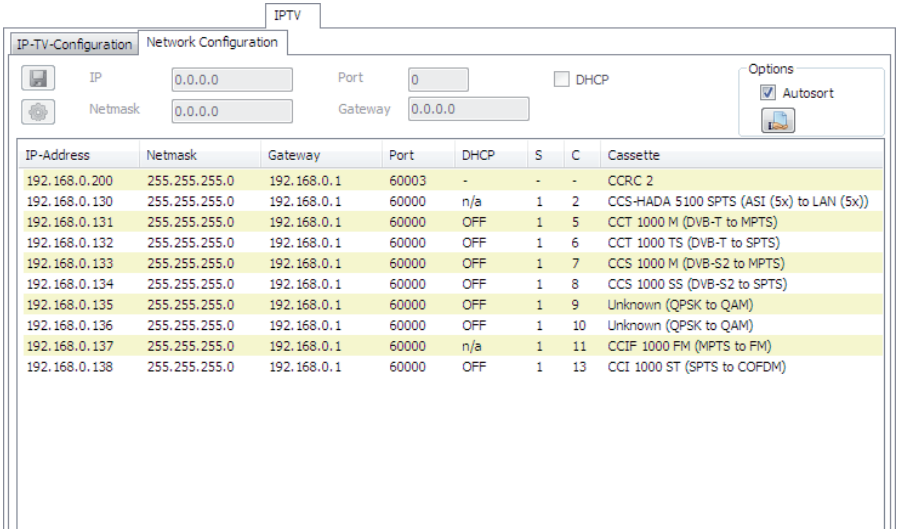
If you select a row in the table, you can change this settings directly in the area above of the table. Store the changes using button .

—> If an "Ethernet password" is assigned to the management system, it will be requested.

If you select a row in the table, you can change - based on this address - all subsequent IP addresses in ascending sequence using button .

- Select, for example, the second row of the table.
- Enter the desired values in the upper area of the window (e.g. IP address 192.168.0.130, Gateway 192.168.0.1)
- Start the automatic IP setting for all cassettes using button .

Example: IPTV addresses without conflicts



IP-Address	Netmask	Gateway	Port	DHCP	S	C	Cassette
192.168.0.200	255.255.255.0	192.168.0.1	60003	-	-	-	CCRC 2
192.168.0.130	255.255.255.0	192.168.0.1	60000	n/a	1	2	CCS-HADA 5100 SPTS (ASI (5x) to LAN (5x))
192.168.0.131	255.255.255.0	192.168.0.1	60000	OFF	1	5	CCT 1000 M (DVB-T to MPTS)
192.168.0.132	255.255.255.0	192.168.0.1	60000	OFF	1	6	CCT 1000 TS (DVB-T to SPTS)
192.168.0.133	255.255.255.0	192.168.0.1	60000	OFF	1	7	CCS 1000 M (DVB-S2 to MPTS)
192.168.0.134	255.255.255.0	192.168.0.1	60000	OFF	1	8	CCS 1000 SS (DVB-S2 to SPTS)
192.168.0.135	255.255.255.0	192.168.0.1	60000	OFF	1	9	Unknown (QPSK to QAM)
192.168.0.136	255.255.255.0	192.168.0.1	60000	OFF	1	10	Unknown (QPSK to QAM)
192.168.0.137	255.255.255.0	192.168.0.1	60000	n/a	1	11	CCIF 1000 FM (MPTS to FM)
192.168.0.138	255.255.255.0	192.168.0.1	60000	OFF	1	13	CCI 1000 ST (SPTS to COFDM)

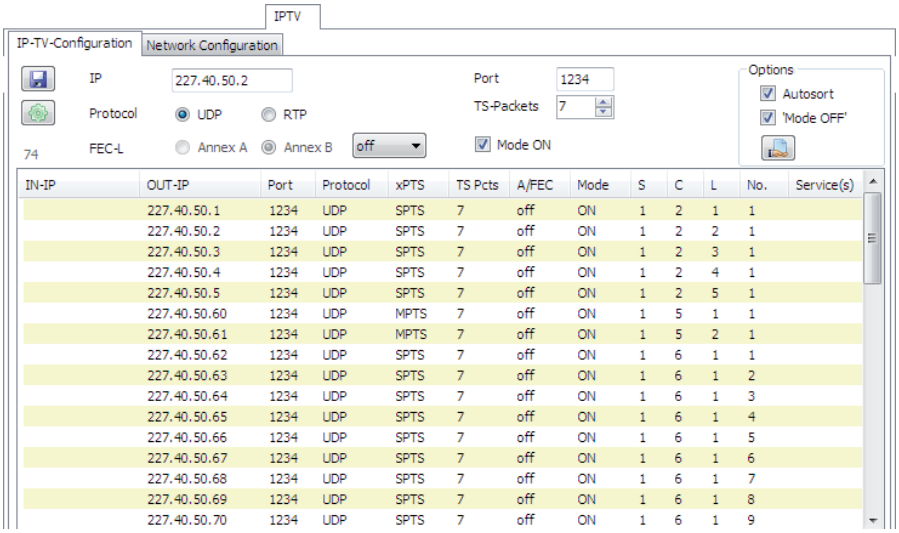
—> In the example the IP addresses of rows 3 to 9 are assigned to 192.168.0.131...137. The netmask, gateway and port settings will be transferred to all cassettes. Also the DHCP setting will be transferred if it is supported by the cassette.

—> **The changes do not take effect until they are sent to the plant .**

You can export the IP address list as text file via button .

IPTV IP Addresses (Multicast IP Addresses)

In tab "IP-TV-Configuration" you get an overview about the IPTV IP addresses of all cassettes of the plant.



IN-IP	OUT-IP	Port	Protocol	xPTS	TS Pcts	A/FEC	Mode	S	C	L	No.	Service(s)
	227.40.50.1	1234	UDP	SPTS	7	off	ON	1	2	1	1	
	227.40.50.2	1234	UDP	SPTS	7	off	ON	1	2	2	1	
	227.40.50.3	1234	UDP	SPTS	7	off	ON	1	2	3	1	
	227.40.50.4	1234	UDP	SPTS	7	off	ON	1	2	4	1	
	227.40.50.5	1234	UDP	SPTS	7	off	ON	1	2	5	1	
	227.40.50.60	1234	UDP	MPTS	7	off	ON	1	5	1	1	
	227.40.50.61	1234	UDP	MPTS	7	off	ON	1	5	2	1	
	227.40.50.62	1234	UDP	SPTS	7	off	ON	1	6	1	1	
	227.40.50.63	1234	UDP	SPTS	7	off	ON	1	6	1	2	
	227.40.50.64	1234	UDP	SPTS	7	off	ON	1	6	1	3	
	227.40.50.65	1234	UDP	SPTS	7	off	ON	1	6	1	4	
	227.40.50.66	1234	UDP	SPTS	7	off	ON	1	6	1	5	
	227.40.50.67	1234	UDP	SPTS	7	off	ON	1	6	1	6	
	227.40.50.68	1234	UDP	SPTS	7	off	ON	1	6	1	7	
	227.40.50.69	1234	UDP	SPTS	7	off	ON	1	6	1	8	
	227.40.50.70	1234	UDP	SPTS	7	off	ON	1	6	1	9	

—> **"IPTV" IP addresses, which are used to send and receive the IPTV channels (e.g. 227.40.50.x) must be within the "multicast" range from 224.5.0.0 ... 231.255.255.255.**

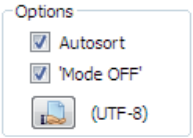
—> Analogous to tab "Network Configuration" (Page 31) also the following functions are available:
- Check for conflicts (OUT-IP)
- Alerts are issued
- Changing the sort order
- Changing of settings
- Automatic IP assignment

—> **The changes do not take effect until they are sent to the plant .**

—> The column names "S", "C", "L" and "No." mean **S**tation, **C**assette, **L**ine and IP address **no**.

You can export the IP address list as text file via button .

OPTIONS



Autosort:
By default the list of the IP addresses is sorted by columns S/C/L/No. (Station/Cassette/Line/Number). Via the column headers the sorting can be changed.
If "Autosort" is checked, the list will be resorted by S/C/L/No. if any changes are stored by button .
Uncheck "Autosort" if you do not want the automatic sorting function.

"Mode OFF" (only tab "IP-TV-Configuration"):
In column "MODE" it is displayed, which IP addresses are "active" (ON) or "inactive" (OFF).
If "Mode OFF" is unchecked, all inactive IP addresses are hidden.

Export IP addresses:
You can export the list of IP addresses as text file in the "UTF-8" file format via button .

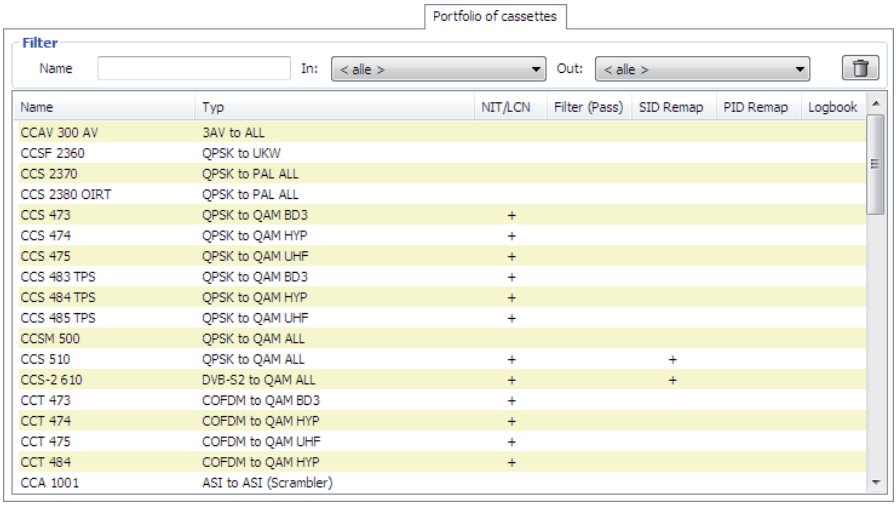
TAB "SUPERVISION LIST"

In tab "**SUPERVISION LIST**" you get an overview about all monitored channels/frequencies if a monitoring cassette is used, which can also be exported in form of a ".txt" file by button Export.
Via the context menu you can open the settings of the (see also Page 96).

—> If an error occurs a warning flashes.

TAB "PORTFOLIO OF CASSETTES"

In tab "Portfolio of cassettes" you get an overview of all cassettes which can be controlled via the CCRS 1000. A "+" indicator in the columns signals, that the cassette has the appropriate functionality.



Name	Typ	NIT/LCN	Filter (Pass)	SID Remap	PID Remap	Logbook
CCAV 300 AV	3AV to ALL					
CCSF 2360	QPSK to UKW					
CCS 2370	QPSK to PAL ALL					
CCS 2380 OIRT	QPSK to PAL ALL					
CCS 473	QPSK to QAM BD3	+				
CCS 474	QPSK to QAM HYP	+				
CCS 475	QPSK to QAM UHF	+				
CCS 483 TPS	QPSK to QAM BD3	+				
CCS 484 TPS	QPSK to QAM HYP	+				
CCS 485 TPS	QPSK to QAM UHF	+				
CCSM 500	QPSK to QAM ALL					
CCS 510	QPSK to QAM ALL	+		+		
CCS-2 610	DVB-S2 to QAM ALL	+		+		
CCT 473	COFDM to QAM BD3	+				
CCT 474	COFDM to QAM HYP	+				
CCT 475	COFDM to QAM UHF	+				
CCT 484	COFDM to QAM HYP	+				
CCA 1001	ASI to ASI (Scrambler)					

In **section "Filter"** you can enter filter settings, in order to limit the result:

– Input field "Name" limits the result to assigned product names.
  The input of e.g. CCS 1000 returns as result all cassettes of this type.
– Using the selection field "In:" resp. "Out:" you can limit the result to cassettes which can handle the corresponding input resp. output signals.

The button resets all filter settings.

6.3 START PAGE - TOOLBAR

The following functions can be called up directly via buttons:

Exits the program

Opens a saved configuration (plant) – Page 37

Saves the current configuration – Page 38

Saves the current configuration under a new name – Page 38

Prints the current configuration – Page 39

Opens the "Plant Settings" window – Page 81

* Opens the "Timer" window – Page 90

* Opens the "Station configuration" window – Page 95

* Opens the "Settings" window– Page 46

* Opens the "Filter" window – Page 53

* Opens the "create NIT" window – Page 65

* Opens the "NIT (Expert Mode)" window – Page 68

Opens the "copy NIT" window – Page 78

Reads the data of the connected plant – Page 41

Calls up the virtual control unit – Page 43

Sends the current configuration to the plant – Page 42

Establishes a connection to the plant – Page 44

Deactivates a connection – Page 44

Checks various parameters of the configuration – Page 45

Decimal <–> hexadecimal presentation/entering of IDs – Page 52

Calls up the "Service List Management" (SELMA) – Page 109

To playback an IPTV stream – Page 117

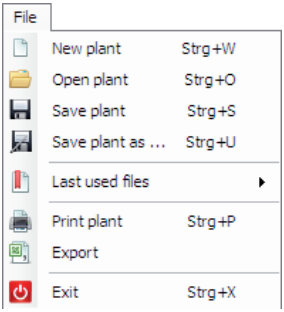
Calls up the operating instruction – Page 119.

*) A component, which supports this function, must be selected in the left section (tree structure).

6.4 Menu File – Administrate the configuration data

Via menu "File" the data of the configuration held in the main memory can be administrated.

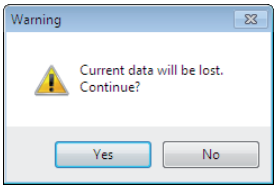
All changes/configurations, done in the CCRS 1000, first are held in the temporary random access memory (RAM). Save the configuration data (recommended) so that they can not be lost.



New plant

In this menu you can start a new "empty" configuration.

- Select menu item **File > New plant**.



—> Not saved data will be lost!

- Confirm the warning with button Yes .

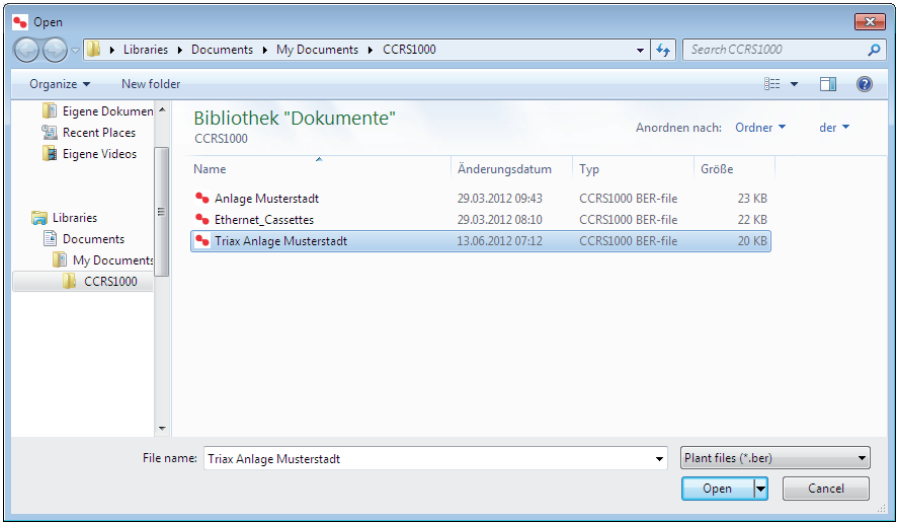
—> The "Plant Settings" menu will be called up (Page 81).

Open plant

In this menu the saved data of a plant can be loaded into the CCRS 1000.

- Select menu item **File > Open plant**.

—> This function can also be selected by button .



- Select a plant and confirm with button Open.

—> The saved data are loaded into the programme (RAM).

SAVE PLANT

In this menu the current configuration can be saved (backup).

- Select menu item **File > Save plant**.

—> This function can also be selected by button .
—> The configuration data loaded in the RAM will be saved.
—> At new prepared or read data the menu "Save plant as..." appears if a filename is not yet assigned.

SAVE PLANT AS...

In this menu the current configuration can be saved with a different file name (variant).

- Select menu item **File > Save plant as...** .

—> This function can also be selected by button .
—> The menu "Save plant as..." appears.

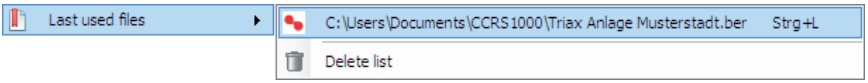
- If necessary select a different folder, enter a file name and save the file with button Save.

LAST USED FILES

In this menu, you have direct access to recently used files.

—> Not saved data will be lost!

- Select menu item **File > Last used files > "the file"**.



—> The saved data are loaded into the programme (RAM).

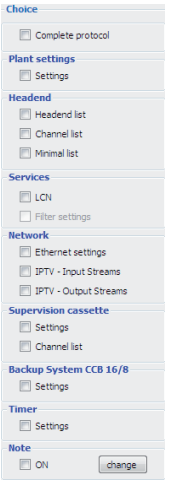
PRINT HEADEND CONFIGURATION PROTOCOL

In this menu a protocol of the current configuration can be printed.

- Select menu item **File > Print plant**.

—> This function can also be selected by button .
—> A "Print preview" window appears.
—> In the main section of the window the print preview dependent on the selected settings is shown.

- Select all settings to be printed in section "Choice".
- Start printing with button .



HTML STORE THE CONFIGURATION PROTOCOL AS HTML FILE

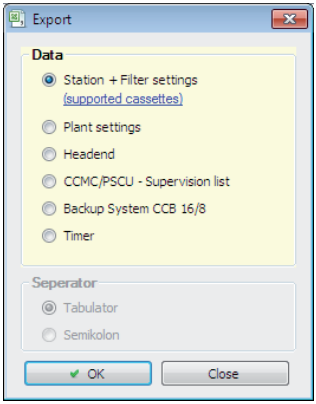
- Store the configuration protocol as HTML file with button **HTML**.

—> The print preview can be cancelled with button .

EXPORT

In this menu parts of the configuration can be exported as a text file.

- Select menu item **File > Export**.



- Select the part to be exported. For the points "system settings" up to "timer", you can select which separator (tabulator or semicolon) shall be added, for a column view.
- Export the file using button OK.
  Enter a file name and the path of the memory location in the appearing "Save as" window in order to store the file.

EXIT

With this menu item you can exit the programme.

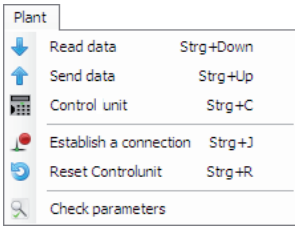
—> Attention: Unsaved changes will be lost.

- Select menu item **File > Exit** or button .

6.5 MENU PLANT – COMMUNICATION PROGRAMME <–> PLANT

The communication with the plant is done via menu "Plant".

All settings first will be done in the CCRS 1000 software (RAM of the PC). In order to get it "active" at the plant the configuration data must be sent finally to the plant ("Send data")!



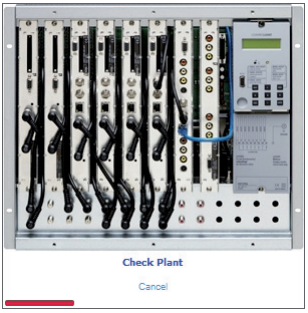
READ DATA

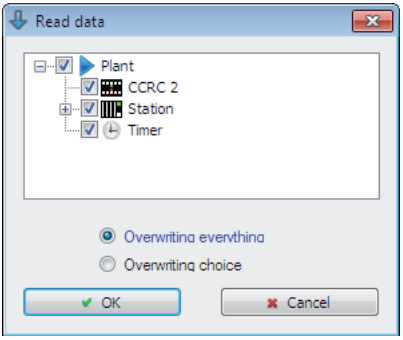
In this menu you can read the configuration data out of the plant into the programme (RAM).

- Select menu item **Plant >** **Read data**.

—> This function can also be selected by button .

—> If there is no connection to the plant, the menu "Connection settings" appears. For a detailed description of this menu see chapter 5 "Connection to the plant" (Page 19).





—> At **the first reading via a COM interface after a PC restart** incorrect data may be displayed. In this case click to button Cancel and then to button again.

- Select which data of the head-end station should be read.

—> By default all checkboxes are selected .

—> If you would like to read out only one or a few components, uncheck box "plant" (all components are deselected) and then select the desired components. The checkbox "Overwriting everything" will be deactivated, checkbox "Overwriting choice" will be activated.

—> Individual cassettes can be shown by symbol "+" ( ) for individual selection.

—> To select all the components again, check the box "Overwriting everything".

- Start the process using button OK.

—> The selected data will be imported.

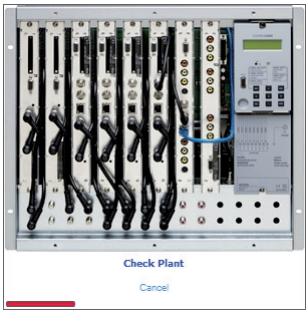
SEND DATA

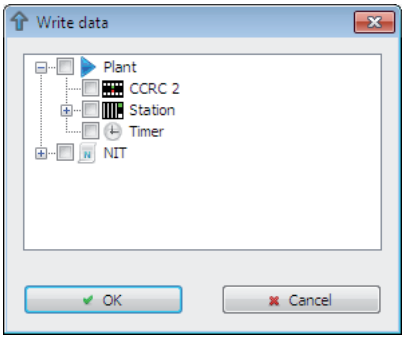
In this menu you can send the configuration data out of the PC into the plant.

- Select menu item **Plant >** **Send data**.

—> This function can also be selected by button .

—> If there is no connection to the plant, the menu "Connection settings" appears. For a detailed description of this menu see chapter 5 "Connection to the plant" (Plant 19).



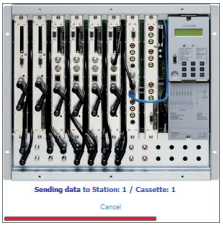


- Select which data should be sent into the head-end station ( ).

—> Individual cassettes can be shown by symbol "+" ( ) for individual selection.

- Start the process using button OK.

—> The selected data will be sent.

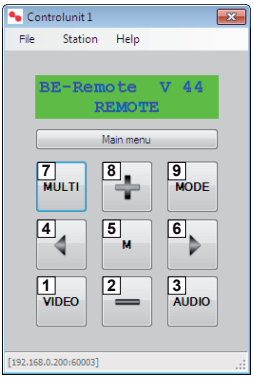


CONTROL UNIT

In this menu you receive a "virtual" control unit in order to operate the plant via the PC.

- Select menu item **Plant >** **Control unit**.

—> This function can also be selected by button .
—> If there is no connection to the plant, the menu "Connection settings" appears. For a detailed description of this menu see chapter 5 "Connection to the plant" (Page 19).
—> This feature is disabled in the demo version.



Via this menu the control unit of the plant can be remote controlled. If several stations are connected select the corresponding control unit in menu "Station". The keys of the figure are designed as buttons (mouse control).
In order to activate the system information menu click on button Main menu.
In addition operation via the number keypad of the PC is possible. The assignment of the keys is shown in the figure.
Close the menu with menu item **File >** **Exit** or button .

ESTABLISH A CONNECTION / DEACTIVATE CONNECTION

With this menu item you can establish/deactivate the connection to the plant (toggle function).

- Select menu item **Plant > Establish a connection / Deactivate connection**.

—> This function can also be selected by button / .

—> If there is no connection to the plant (menu " Establish a connection"), the menu "Connection settings" appears. For a detailed description of this menu see chapter 5 "Connection to the plant" (Page 19).

—> If there is already an active connection to the plant (menu " Deactivate connection"), the connection will be deactivated.

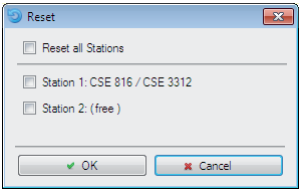
RESET CONTROL UNIT

With this menu item you can restart the control unit.

—> A connection to the plant must be established.

- Select menu item **Plant > Reset Control unit**.

—> The number of selectable stations depends on the kind of connection / management unit.



- Select the stations, whose control unit is to be reset and confirm with button OK.

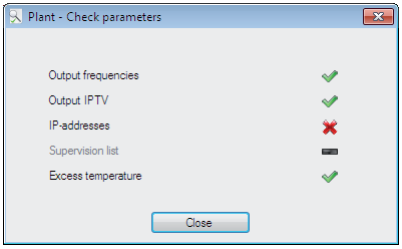
CHECK PARAMETERS

With this menu item you can check the system parameters for conflicts.

- Select menu item **Plant >** **Check parameters**.

—> This function can also be selected by button .

Parameter	**Check for…**	**Conflict indication in tab …**
Output frequencies	… double assignment of output frequencies	Complete list
Output IPTV	… double assignment of IPTV output IP addresses	IPTV > IP-TV-Configuration
IP addresses	… double assignment of hardware IP addresses	IPTV > Network Configuration
Supervision list (CCMC 6000)	… deviation from the reference levels (TV analog and digital), BER > $1e^{-4}$ (TV digital)	Supervision list
Temperature (only with digital backplane)	… exceeding the maximum allowable station temperature.	Details of choice (of the station) > Station configuration



If there are no conflicts detected, is displayed.
If there are conflicts detected, is displayed.
Not available parameters are displayed by .

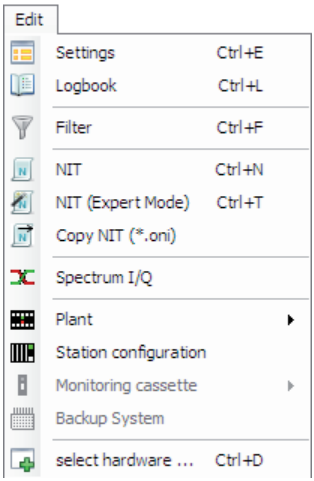
—> In the example no conflict are detected at the output frequencies, IPTV output IP addresses and the temperature. At the hardware IP addresses double assignments are detected. A monitoring cassette does not exist.

6.6 Menu Edit – Plant configuration

All necessary tools for configuring the plant are included in menu "Edit":

All settings (with exception of the "direct control via the virtual control unit") first will be done in the CCRS 1000 software (random access memory – RAM of the PC). In order not to loose the configuration data it should be saved (recommended).

To get it "active" at the plant the configuration data must be sent finally to the plant ("Send data")!



Settings

Via this menu a component marked in the left window (tree structure) can be configured.

- Select the component to be configured in the left window (tree structure).
- Select menu item **Edit > Settings**.

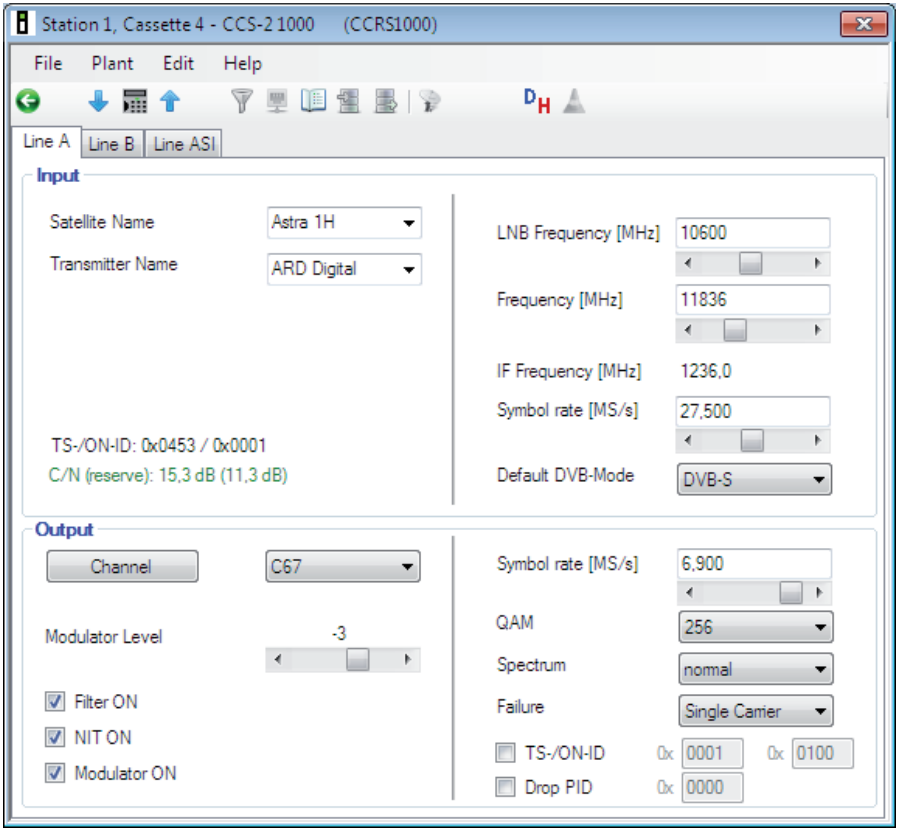
—> This function can also be selected by button or the context menu (right mouse button).

—> If a plant is selected, the menu "Plant settings" appears (see Page 81).

—> All settings to be done via the control unit are possible.
As the settings (and therefore the menus) of the individual cassettes are quite different, cassette CCS-2 1000 is described exemplarily in this instruction.

—> **The changes do not take effect until they are sent to the plant .**

EXAMPLE:

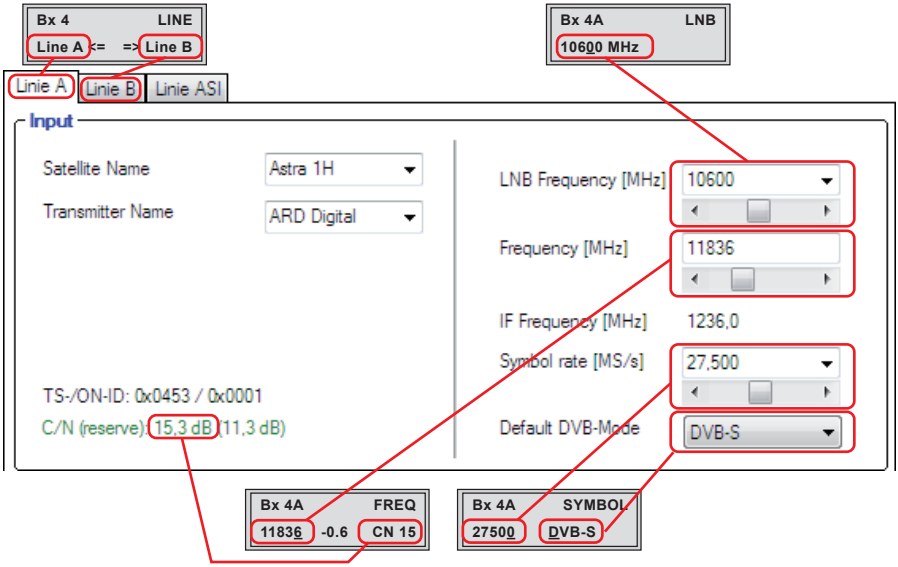


—> The function of buttons , , are described in the main menu "Plant" (Page 40), button is described in menu "Edit > Filter" (Page 53).

In the example the menu contains three submenus (tab - Line A, Line B and Line ASI). In section "Input" of "Line A(B)" all settings for tuner input A(B), in section "Output" all settings for the modulator output A(B) are to be done.
"Line ASI" contains all settings for the ASI output.

In the following figures the input fields are assigned to the corresponding menus of the control unit.

Section Input Line A/B

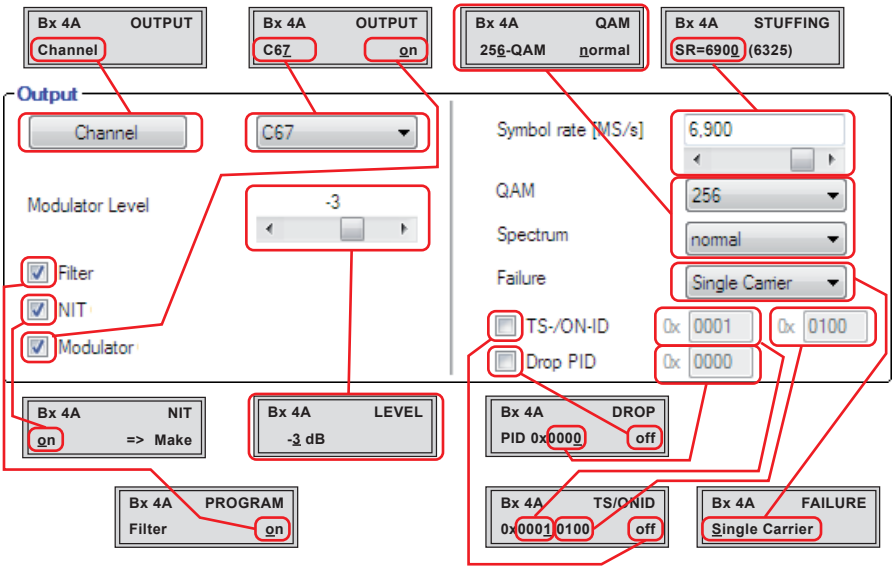


In the input fields "Satellite Name" and "Transmitter Name" an optional text (max. 16 character) can be entered.

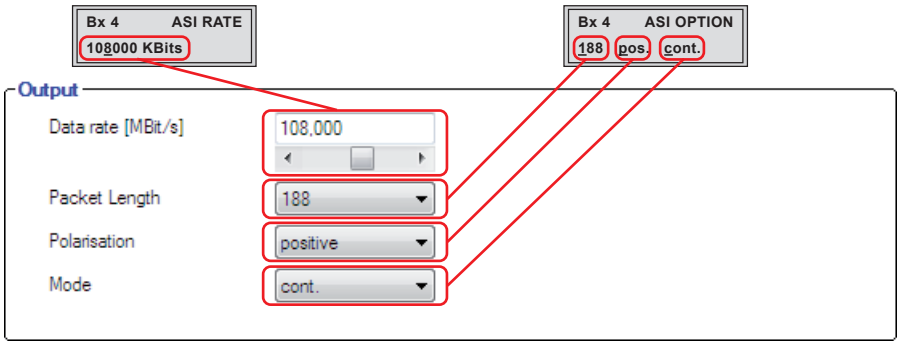
—> This text is shown in listings and facilitates the identification of the transponder set.

—> "Names" can only be stored in an existing management system. At e.g. local connection without management system the "names" are only stored within a ber-file if the complete head-end station is stored (page 38). At renewed processing of the head-end station, first, the stored ber-file must be imported into the CCRS 1000, before reading the head-end station.

Section Output Line A/B



Section Output "Line ASI"



—> For further information about the settings observe the assembly instruction of the corresponding cassette.

SETTINGS WINDOW - FILE MENU

Back

- Via menu item **File > Back** exit the settings.

—> Return to the main window.
—> This function can also be selected by buttons /.

SETTINGS WINDOW - PLANT MENU

The functions …
– Read data,
– Send data and
– Control unit correspond to the functions in the main menu "Plant" and are described from Page 40 on.

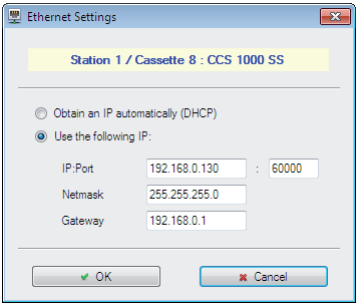
SETTINGS WINDOW - EDIT MENU

Filter

The function Filter corresponds to the functions in the main menu "Plant" and is described from Page 53 on.

Ethernet

In this menu you can change the network settings of an IPTV cassette.



- If necessary enter the desired addresses for your network.
- If the cassette shall obtain the IP settings from a DHCP server, activate check-box Obtain an IP automatically (DHCP).
- Save the settings using button OK.

Logbook

See page 53.

Export cassette and filter settings

With this menu item you can export the cassette and filter settings.

- Select menu item **Edit >** **Export cassette and filter settings**.
- Enter a file name, select the target directory and save the file using button Save.

Import cassette and filter settings

With this menu item you can import the cassette and filter settings.

- Select menu item **Edit >** **Import cassette and filter settings**.
- Select the corresponding file and confirm with button Open.

—> The saved data will be imported into the programme.

SELMA

With this menu item you can import the input settings from SELMA or export the input settings to SELMA (page 109).

—> The cassette must support this function.

- Select menu item **Edit >** **SELMA**.

—> SELMA is opened in order to select or to store a transponder.

SETTINGS WINDOW - HELP MENU

Decimal <–> Hexadecimal

With this menu item you can change the indication (and input) of IDs from Hexadecimal to Decimal numbering system (and vice versa).

- Select menu item **Help > Decimal <–> Hexadecimal** or click on button .

—> The hexadecimal numbering system always starts with the term "0x".

VLC

With this menu item you can start the playback of an IPTV stream of an IPTV cassette.

—> The "VLC Media Player" must be installed on your PC.
—> The "VLC.exe" file must be assigned at the first use.

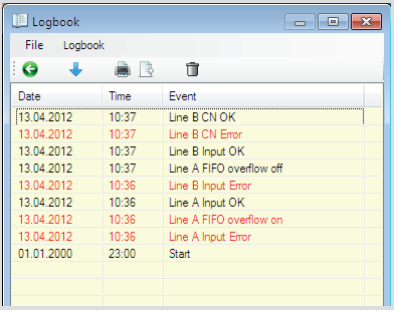
- Select menu item **Help > VLC** or click on button .

LOGBOOK

Via this menu you can call up the log file of the cassette.

- Select menu item **Edit >** **Logbook**.

—> The cassette must support this function.
—> The logbook is also displayed in the "main window/detail of choice" if the cassette is selected in the left area (tree diagram).
—> Failures and incidents of the cassette are recorded together with date and time (e.g. missing input signal, reset or remote configuration of the cassette). These incidents are shown in the menu window after read out.
—> Saving the configuration will also save the log file.



- Click to button in order to read the current log file.

—> A connection to the plant must be activated ( ).
Otherwise menu "connection settings" appears, in order to activate a connection.

- Click to button in order to print the log file.

- Click to button in order to export the log file in form of a .txt file.

- Click to button in order to delete the log file in the cassette.

—> A connection to the plant must be activated ( ).
Otherwise menu "connection settings" appears, in order to activate a connection.

FILTER

—> The cassette must support this function.
As the settings (and therefore the menus) of the individual cassettes are quite different, cassette CCS-2 1000 is described exemplarily in this instruction.

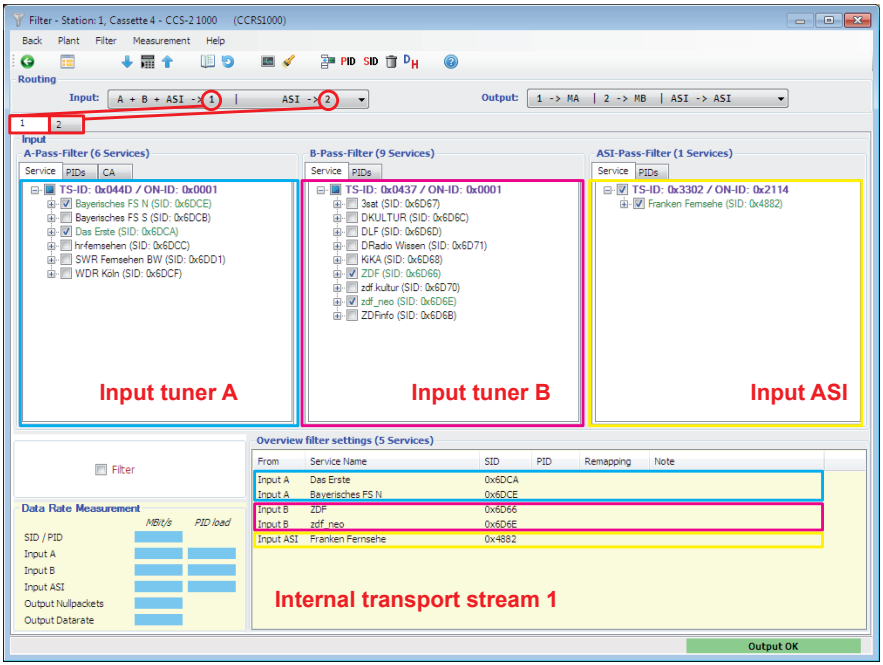
Via this menu you can set the input and output routing as well as e.g. the filtering of the services and PIDs (dependent on the type of cassette).
SIDs and PIDs are shown in Hexadecimal or Decimal numbering system (D_H).

—> The hexadecimal numbering system always starts with the term "0x".

- Select the cassette to be set in the left window (tree structure).
- Select menu item **Edit > Filter**.

—> This function can also be selected by button or the context menu (right mouse button).

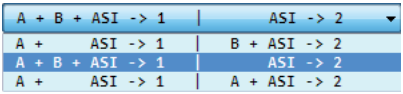
EXAMPLE:



SECTION "ROUTING":

In this section the input and output routing can be adjusted.

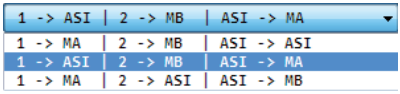
Input:



—> Input routing (INROUTE) = the distribution of the input signals to the (internal) transport streams 1 and 2. "A+B+ASI=>1 | ASI=>2" means: Tuner input A + tuner input B + ASI input is switched to internal transport stream 1, in addition the ASI input is switched to internal transport stream 2.

- Select the desired setting.

Output:

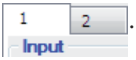


—> Output Routing (OUTROUTE) = the distribution of the (internal) transport streams 1 and 2 and the ASI input to the outputs.
"1=>ASI | 2=>MB | ASI=>MA" means: Transport stream 1 is switched to the ASI output, transport stream 2 to modulator B and the ASI input is switched to modulator A.

- Select the desired setting.

SECTION "INPUT":

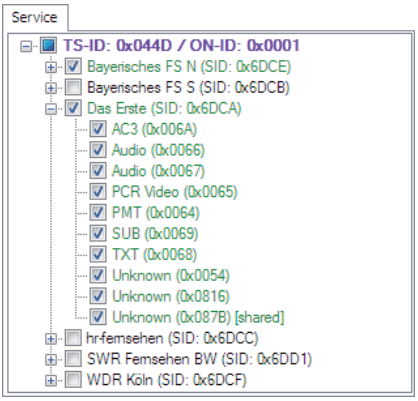
Via the tabs "**Services**" and "**PIDs**" the service and PID filter settings for the (internal) transport streams 1 and 2 can be done. Tab "**CA Modul**" (transport stream 1) contains the filter settings (the services to be descrambled) and the settings of a CA module.

- Select transport stream 1 or 2 via buttons 

.

—> The windows in section "Input" (e.g. A-Pass-Filter) are dependent on the settings of "Input Routing".

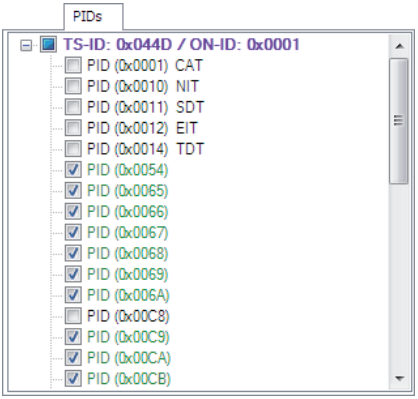
- In tab "**Service**" select the services to be transmitted.



—> In order to save bandwidth, PIDs can be deselected (e.g. the PIDs of languages not needed). **Please also refer to the memory usage of the PID Administration** (Data rate measurement page 62).

—> The individual PIDs are arranged below the corresponding channel.

In tab "**PIDs**" all PIDs are listed in ascending order without an assignment to a channel.



—> If filters will be activated in tab "Services", these filters are also activated in tab "PIDs" (and vice versa).

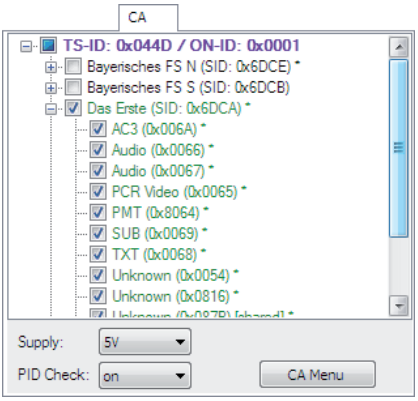
—> Therefore also observe the functions "Add a new PID" and "Remap a PID **PID**" on page 61.

—> If filters for Services and PIDs are set, first only the setting of the filters will be transmitted to the cassette.

The filters are not activated until the "Filter ON" check box Filter is activated (separately for transport stream 1 and 2 1 2 Input) and also these settings are transmitted to the cassette .

—> Without activated filters all services/PIDs of the "A-Pass-Filter" will be transmitted.

If a cassette contains a CA module, in tab "**CA Modul**" the corresponding filter settings (the services to be descrambled) as well as the settings of the CA module can be done.



- Select the services to be descrambled.

—> If a service can not be descrambled, as e.g. the number of PIDs to be descrambled by the CA module are exhausted, PIDs of e.g. not needed languages can be deselected, to get free capacities.

Via selection field "**Supply**" dependent on the cassette (and its software version) the power supply of the CA module can be switched over from 5V to 3.3V.

—> Power supply switching of "newer" cassettes will be done automatically. If the cassette does **not** have the control menu "Supply", the selection field "Supply" is **out of order**.

Bx 4A	CA
Supply	5.0 V

—> Please also observe the operating instructions of the CA module.

Via selection field "**PID Check**" the PID monitoring can be switched OFF.

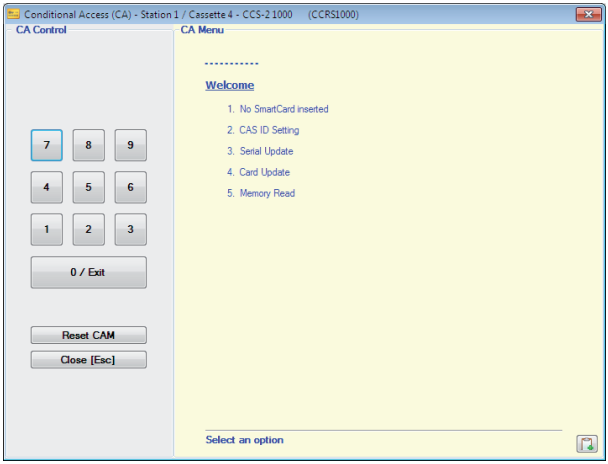
—> By default PID monitoring is switched ON. If particular PIDs are not descrambled the CA module is reset. If dropouts occur during the descrambling of several stations the PID monitoring can be switched off.

Configuration of the CA module:

—> A connection to the plant must be activated ( ).

- Click on button CA Menu.

—> This menu depends on the CA module used. Therefore please observe the operating instruction of the CA module. The following figure is exemplarily.



—> The menu items are numbered in section "CA Menu".

- Click on the corresponding numbered button in section "CA Control" in order to select a menu item.
- Using button the contents of the "CA Menu" can be copied into the clipboard of the PC.
- Using button Reset CAM the CA module can be reset.

- Using button 0 / Exit you will return from any submenu of the CA module to its main menu.
- Using button Close [Esc] you will exit the configuration.

SECTION "OVERVIEW FILTER SETTINGS":

Herein you get a summery of the selected filters in section "Input" of the corresponding internal transport stream independent on whether the filters are activated.

FILTER WINDOW – MENU BACK

Menu item **Back > Settings**:
Via this menu item you can open the cassette settings (Page 46).

Menu item **Back > Back**:
Via this menu item you will return to the main window of the programme.

FILTER WINDOW – MENU PLANT

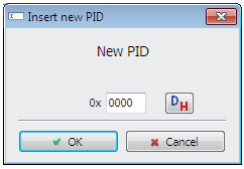
You will find a description of the menu item at the following pages:
– Read data – Page 41
– Send data – Page 42
– Control unit – Page 43
– Logbook – Page 53
– Reset – Page 44

FILTER WINDOW – MENU FILTER

Menu item **Filter > New PID**:
Via this function a new PID can be created.
- Click to any PID of the list which should be complemented by the new PID.

—> The menu / the button becomes "active".

- Select menu item **Filter > New PID** or click on button .



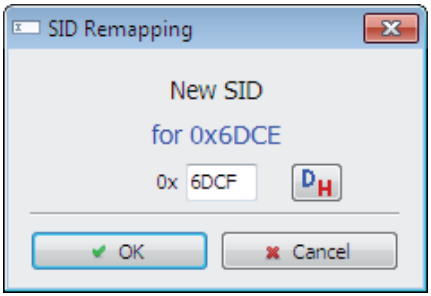
- Enter the new PID as a hexadecimal value and click on button OK.

—> If necessary, you can switch the input from Hexadecimal to Decimal numbering system using button DH.
The hexadecimal numbering system always starts with the term "0x".
—> The new PID will be added to the list at the corresponding position (red type).
—> **The changes do not take effect until they are sent to the plant**.

Menu item **Filter > SID SID Remapping**:
Via this function a SID can be remapped.

—> This allows the exchange/replacement of a programme, without having to perform a new channel search at the receivers..

- Click on the service to be remapped e.g. Bayerisches FS N (SID: 0x6DCE)
- Click on button SID.



- Enter the new SID as a hexadecimal value and click on button OK.

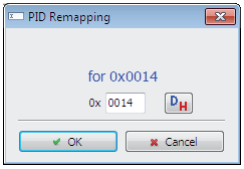
—> If necessary, you can switch the input from Hexadecimal to Decimal numbering system using button DH.
The hexadecimal numbering system always starts with the term "0x".
—> The "new" SID will be added behind the "old" SID ("old" SID —> "new" SID) Bayerisches FS N (SID: 0x6DCE => 0x6DCF).

—> **The changes do not take effect until they are sent to the plant** .

Menu item **Filter > PID PID Remapping**:
Via this function a PID can be remapped.

—> The check box of the **corresponding SID** must be deactivated.

- Click on the PID to be remapped (e.g. PID (0x0011) SDT).
- Click to button PID .



- Enter the new PID as a hexadecimal value and click on button OK.

—> If necessary, you can switch the input from Hexadecimal to Decimal numbering system using button DH.
The hexadecimal numbering system always starts with the term "0x".
—> The "new" PID will be added behind the "old" PID ("old" PID —> "new" PID) PID (0x0111 => 0x0113).
—> **The changes do not take effect until they are sent to the plant** .

Menu item (Checkbox) **Filter >** no 'BAT' and no 'SDT-other'
Via this checkbox the "BAT" and "SDT-other" tables can be filtered out (for both internal transport streams).

—> An activated checkbox is also displayed in section "Overview filter settings".

Menu item **Filter > Delete all filters**:
Via this function the filter settings of the cassette can be reset.

- Select menu item **Filter > Delete all filters** or click on button .

—> **The "Filter ON" setting will not be reset!.**

Filter

If you do **not** set new filter settings after a reset at activated "Filter ON" setting all services are disabled!

—> **The changes do not take effect until they are sent to the plant .**

Menu item **Filter > Decimal <–> Hexadecimal**
With this menu item you can change the indication (and input) of IDs from Hexadecimal to Decimal numbering system (and vice versa).

- Select menu item **Filter > Decimal <–> Hexadecimal** or click on button .

—> The hexadecimal numbering system always starts with the term "0x".

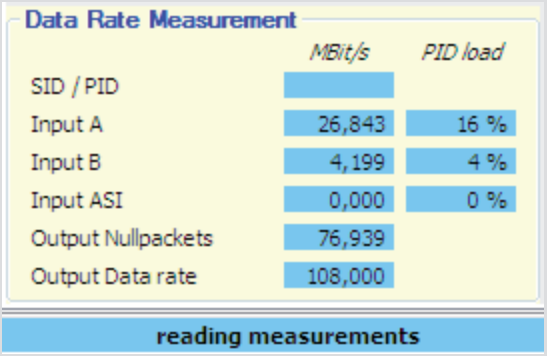
FILTER WINDOW – MENU MEASUREMENT

Menu item **Measurement > Data rate**:
Via this function the input and output data rates of cassettes can be displayed.

- Select menu item **Measurement > Data rate** or click on button .

—> The cassette must support this function.
—> Make sure that the cassette has the latest software version
—> A connection to the plant must be activated ( ).
Otherwise menu "connection settings" appears, in order to activate a connection.

—> The data rates are displayed in section "Data Rate Measurement" and will be updated continuously (**reading measurements** is flashing) until is deactivated.



—> The data rates of the inputs A, B and ASI are shown. In addition it is possible to read the data rates of the output and the null-packets. In order to get the data rate of a single SID/PID mark the SID/PID in the input window – then its data rate is shown at "SID/PID ?".

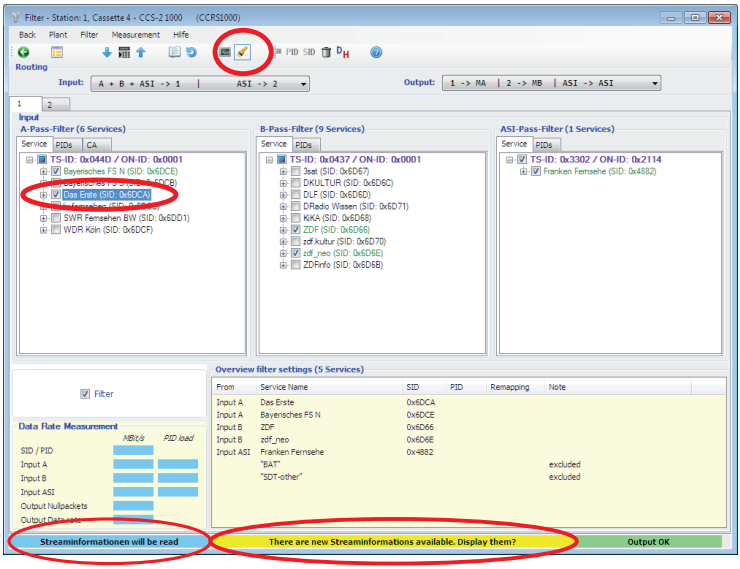
—> **In column "PID load" the memory usage of the PID administration is displayed.** If 90% memory usage is reached, the corresponding field becomes red. **From a utilization of 100% there will be errors in the PID Administration**. In this case remove PIDs which are not needed by the PID filter in order to free up memory (page 55).

—> Changes (e.g. of the filter settings) will take effect in measuring not before they are transmitted to the cassette (with activated filters).

Menu item **Measurement > Stream information**:

Via this function changes in the stream information can be shown.

- Select menu item **Measurement > Stream information** or click on button .



—> A connection to the plant must be activated ( ).
Otherwise menu "connection settings" appears, in order to activate a connection.

—> **reading stream informations** is flashing.

—> If any changes are registered,
There are new Streaminformations available. Display them? is displayed.

- Click to button **There are new Streaminformations available. Display them?** in order to show the changes.

—> For example an additional PID is shown "underlined".
Note that some PIDs will not be transmitted permanently but in intervals of some seconds. This will cause in regular notifications of changes.

—> The stream information will be shown until button is deactivated.

FILTER WINDOW – MENU HELP

Menu item **Help >** **Help**:
With this menu item you call up the programme Help.

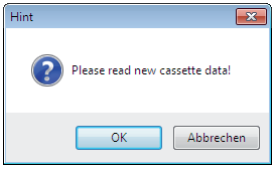
CREATE NIT (NETWORK INFORMATION TABLE)

Via this menu you can create a new NIT.

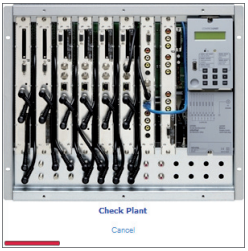
—> **The NIT contains information about the output signals of the plant, which receivers need to do a station search. As most of the receivers cannot work with more than one NIT, all cassettes of a plant must have the same NIT containing all services.**
This function creates a NIT which will be transmitted to all cassettes.

- Select menu item **Edit >** **NIT**.

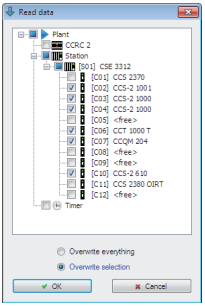
—> This function can also be selected by button or the context menu (right mouse button).



- Click on button OK.



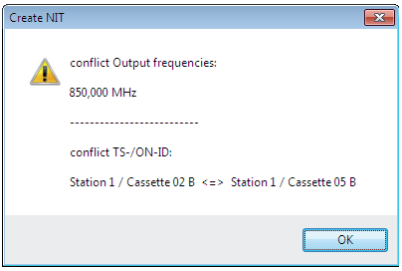
Do not modify the selection!
So it is ensured that all necessary data will be read.



- Click on button OK.

—> The selected data will be read.

The data will be checked and possible conflicts will be indicated.



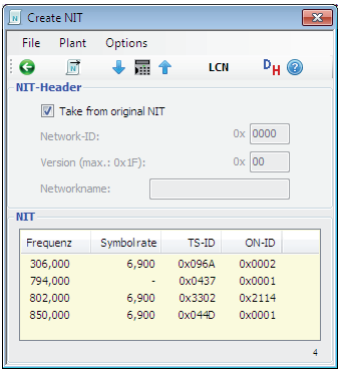
—> In this example the output frequency 850 MHz is used several times and at cassettes 2 Line B and 5 Line B the same TS-/ON-IDs are used.

- Eliminate possible conflicts and create the NIT again.

– For standard applications leave the check at "Take from original NIT".

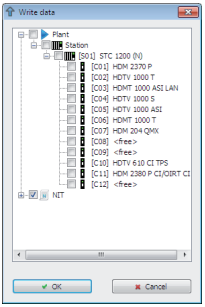
– For special applications remove the check and enter the specific values.

- Send the NIT to the plant using button .



—> NIT is switched to ON at all cassettes.

Do not modify the selection!
So it is ensured that all necessary data will be sent.



- Click the OK button.

CREATE NIT WINDOW – MENU FILE

Menu item **File > Save NIT**:
Via this menu item you can save the NIT **inclusive of the LCN settings**.

—> Via this function it is possible to save the NIT of a plant in form of an ".oni" file, in order to import it into another plant.

- Select menu item **File > Save NIT** in the "Create NIT" menu.

- Enter a file name, select the target directory and save the file using button OK.

—> Via the menu **Edit > Copy NIT** (Page 78) of the **CCRS 1000** the saved NIT can be imported into another plant.

Menu item **File > Back**:
Via this menu item you will return to the main window of the programme.

CREATE NIT WINDOW – MENU PLANT

You will find a description of the menu item at the following pages:
– Read data – Page 41
– Send data – Page 42
– Control unit – Page 43

—> Via menu **Plant > Controlunit** or button modifications still can be done at the station (see Page 43). That the changes can be considered when the NIT is created you should read in again the station data via the menu **Plant > Read data** or the button.

CREATE NIT WINDOW – MENU OPTIONS

Menu item **Options > LCN**:
Via this menu item you call up the LCN settings.
You will fund the description of this function in chapter 7 "LCN – Logical Channel Numbers" (Page 122).

Menu item **Option > DH Decimal <–> Hexadecimal**:
With this menu item you can change the indication (and input) of IDs from Hexadecimal to Decimal numbering system (and vice versa).

- Select menu item **Filter > DH Decimal <–> Hexadecimal** or click on button DH.

—> The hexadecimal numbering system always starts with the term "0x".

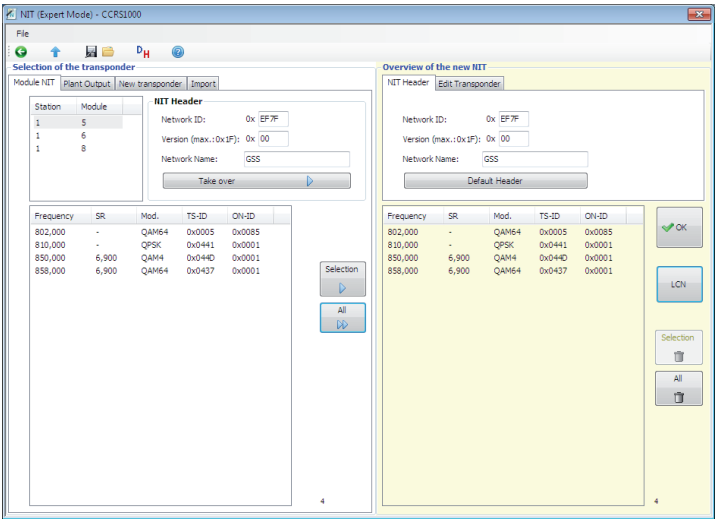
NIT (EXPERT MODE)

Via this menu the NIT can be modified.

—> For the majority of all plants it is sufficient to create a NIT "automatically" via menu item "Create NIT". **Using menu item "Edit NIT" creates a new NIT "manually".** It is e.g. possible to remove transponders from the NIT. These transponders potentially will not be found during station search of receivers. It is also possible to add transponder from "older" cassettes not implied in the NIT automatically.

—> **Make only modifications if you are aware of its consequences.**

- Select menu item **Plant > NIT (Expert Mode)**.

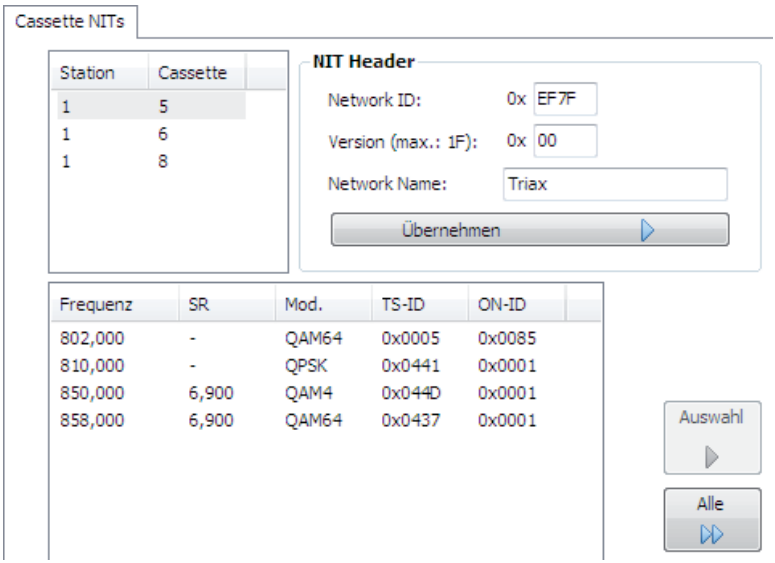


The "NIT (Expert Mode)" menu consists of two sections:

– "**Selection of the transponder**"
  – herein the contents of the NIT will be selected.
– "**Overview of the new NIT**"
  – herein the contents will be collected,
  – modifications can be done and
  – LCN can be edited.

Section "Selection of the transponder" > Tab Cassette NITs:

—> All cassettes able to transmit a NIT will be shown.



The **NIT of a selected cassette** (e.g. Station 1/Cassette 5) will be shown below.

- Click to button in order to transfer all listed transponders to section "Overview of the new NIT", or
- select individual transponders in order to transfer only the selection using button to section "Overview of the new NIT".

—> Transponders not transferred to section "Overview of the new NIT" will not be part of the new NIT and will possibly not found during station search of a receiver!

Tab "Cassette NITs" > NIT Header:

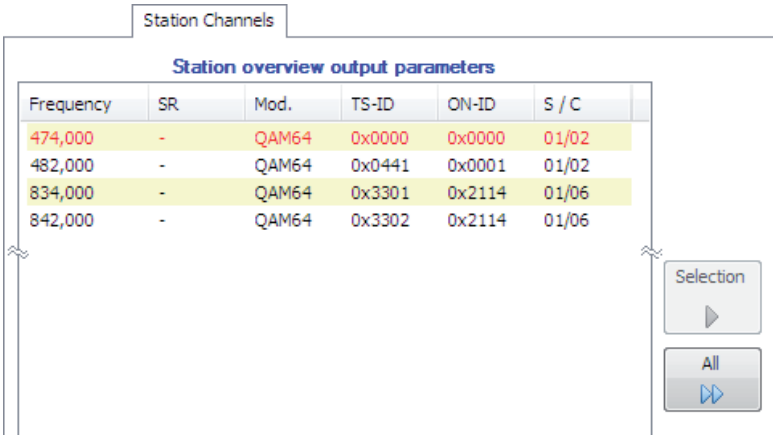
In this menu you can modify the "Network ID", the "Version" and the "Network name".

—> Normally nothing must be modified.

- At special applications enter the specific values.
- Click on button Take over , to take over the modified values into section "Overview of the new NIT".

Section "Selection of the transponder" > Tab Station Channels:

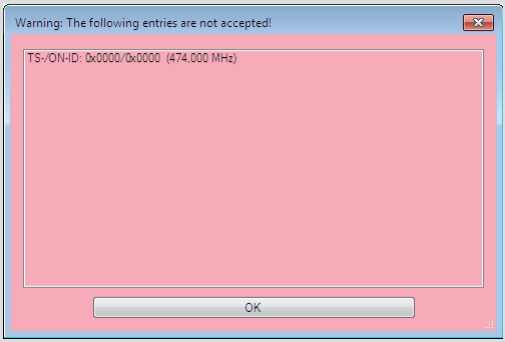
—> The **transponder data (not the NIT!)** of all cassettes transmitting a NIT will be shown.



- Click to button All in order to transfer all listed transponders to section "Overview of the new NIT", or
- select individual transponders in order to transfer only the selection using button Selection to section "Overview of the new NIT".

—> Any conflicts in the transponder list are marked red.

—> If one tries to transfer conflicted transponders to section "Overview of the new NIT" e.g. following window appears:



The values are not transferred. Solve all the conflicts, before creating a new NIT.

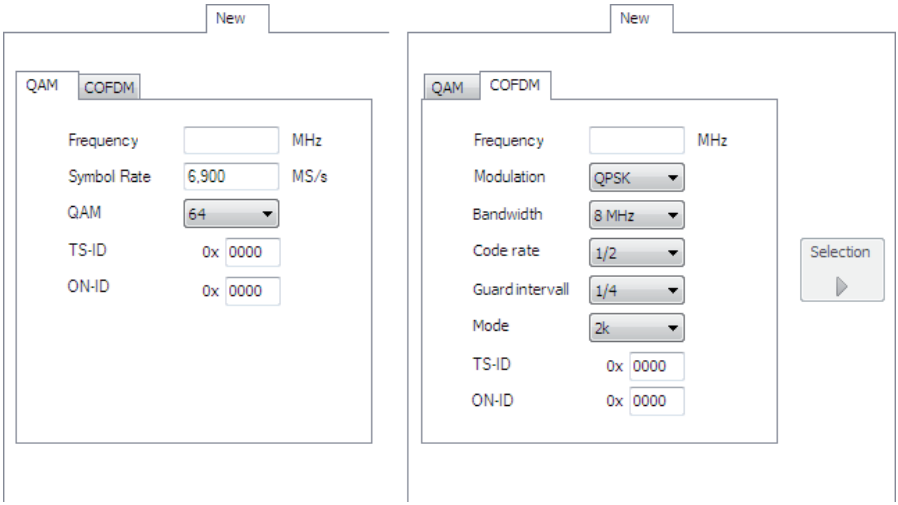
—> Transponders not transferred to section "Overview of the new NIT" will not be part of the new NIT and will possibly not found during station search of a receiver!

SECTION "SELECTION OF THE TRANSPONDER" > TAB NEW:

—> Transponders of older cassettes which are not transmitting a NIT and transponders of external components can be added to the NIT manually. As it is not possible to transmit the "new" NIT to external components, the NIT must be switched off at all of this components in order to avoid two different NITs.

Older cassettes which are not transmitting a NIT are shown in window "Station Cass.".

- Dependent on the cassette click to the tabs QAM or COFDM and enter the data of the transponder.



- Click to button

in order to transfer the transponder to section "Overview of the new NIT".

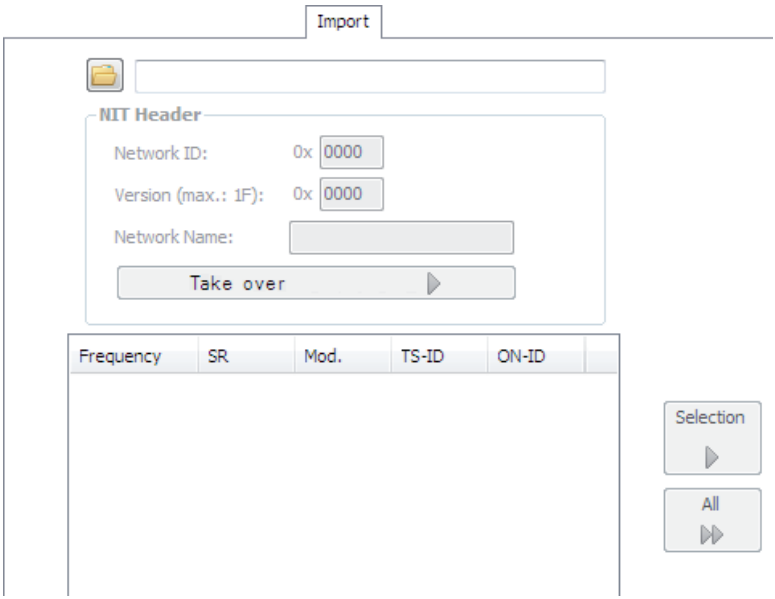
—> The transponder data can be complemented in section "Overview of the new NIT".

—> For adding several transponders repeat this procedure accordingly.

SECTION "SELECTION OF THE TRANSPONDER" > TAB IMPORT:

Herein you can import a NIT which was exported before.

—> This function is useful if a plant consists of several stations, remote controlled via some management units.
In order to create a NIT for the complete plant, please note the example on Page 79.



- In order to import a saved (exported) NIT click to button and select a saved .oni file.

—> The imported transponders are listed below.

- Click to button

in order to transfer all listed transponders to section "Overview of the new NIT", or
- select individual transponders in order to transfer only the selection using button

to section "Overview of the new NIT".

—> Transponders not transferred to section "Overview of the new NIT" will not be part of the new NIT and will possibly not found during station search of a receiver!

Tab "Import" > NIT Header:

In this menu you can modify the "Network ID", the "Version" and the "Network name".

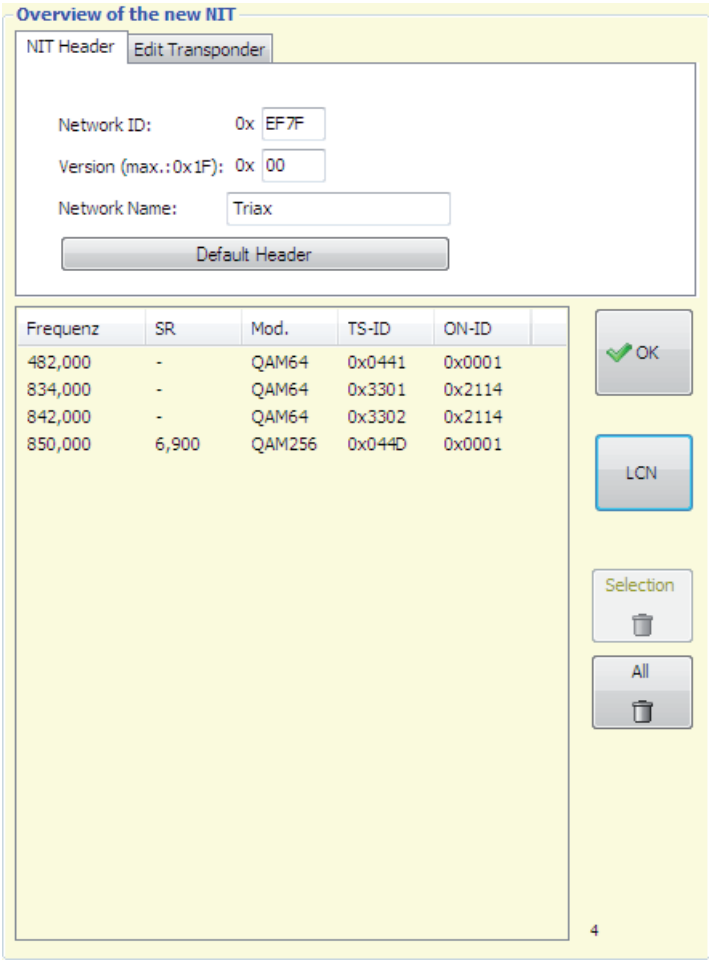
—> Normally nothing must be modified.

- At special applications enter the specific values.
- Click on button

, to take over the modified values into section "Overview of the new NIT".

—> Proceed with section "Overview of the new NIT".

SECTION "OVERVIEW OF THE NEW NIT":

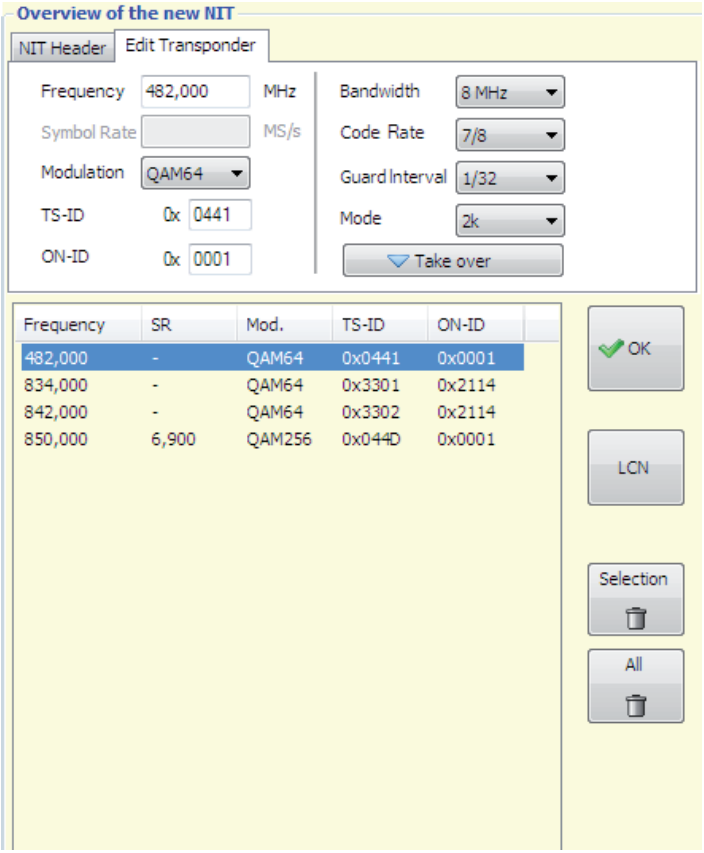


All transponders selected in section "Selection of the transponder" will be listed in the lower part of the window.

—> Herein e.g. you can modify transponder, which you have added in section "Selection of the transponder" > New".

- Select a corresponding transponder of the list.

—> In the upper section tab "Edit Transponder" is activated.



- Modify the data of the corresponding transponder if necessary.
- Take over the modifications with button Take over into the list.

—> Via button LCN the menu LCN (Logical Channel Numbers) will be opened, to preset "Channel Numbers" (see Page 122).

—> Via button Selection selected transponders can be removed from the NIT.

—> Via button All all transponders can be removed from the NIT.

EXPORT "CASSETTE NITS" (*.ONI-DATEI", INCL. LCN):

Via menu item **File > Export "Cassette NITs"** or button you can export the NIT in form of an ".oni" file inclusively the LCN settings.

- Enter a file name, select the target directory and save the file using button Save.

—> Via the menu **Edit > Copy NIT (*.oni)** (Page 78) of the CCRS 1000 the saved NIT can be imported into another plant.

COMPLETE THE NIT PROCESSING

- **Complete the processing of the NIT with button** OK .

—> The NIT will be transferred from section "Overview of the new NIT" to all activated cassettes.
—> Section "Overview of the new NIT" gets "empty".
—> To check the new NIT select a cassette in section "Selection of the transponder" –> its NIT is shown.
—> The modifications will be done – as all settings via CCRS 1000 – first in the programme (RAM). The new (modified) NIT must finally be sent to the plant .

SEND THE NIT TO A PLANT:

- Select menu item **File > Send data** or click on button .

—> The NIT will be send to all cassettes able to transfer a NIT.
NIT is switched to ON at all cassettes.

IMPORT NIT (*.ONI/*.NIT):

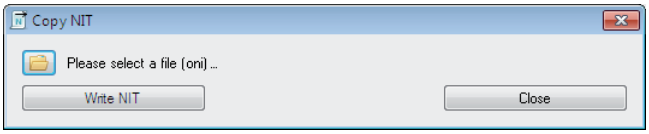
—> Herein data exported by function **File > Export "Cassette NITs"** (Page 77) can be imported.
—> Also former CCRS 1000 data versions (*.NIT files) can be imported.

- Select menu item **File > Import NIT** or click on button .
- Select the corresponding file.
- Click on button Open .

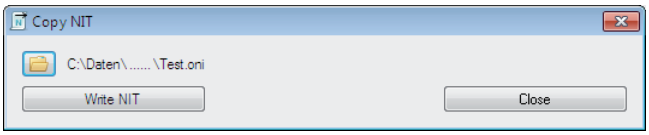
COPY NIT (DIRECTLY INTO THE CASSETTES OF THE PLANT INCL. LCN)

Via this menu you can copy a NIT, stored as a ,oni file (Page 77), directly into the cassettes of a plant.

- Select menu item **Edit > Copy NIT**.



- Open the selecting window with button .
- Select the corresponding ".oni" file from the source directory and click on button Open .

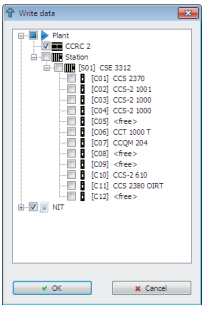


- Copy the NIT directly to the cassettes of the plant using button Write NIT .

Do not modify the selection!
So it is ensured that all necessary data will be sent.

- Click on button OK .

—> The NIT will be send to all cassettes able to transfer a NIT.
NIT is switched to ON at all cassettes.



Note on the creation of a NIT for several stations – LCN included:

=> **Station 1 / Management system 1:**
Create a NIT (Page 65).
Assign the LCNs.
Save the NIT as "*.oni file" (Page 77).

=> **Station 2 / Management system 2:**
Create a NIT (Page 65).
Open the "NIT Expert Mode" (Page 68).
Select a cassette in tab "Cassette NITs" and transfer its NIT into section "Overview of the new NIT" using button

.
Import the NIT (*.oni) from Station 1/Management system 1 (Page 73) and transfer it also to section "Overview of the new NIT" using button

.
Assign the still missing LCNs.
Exit the processing of the NIT using button

.
Export this NIT as a "*.oni file" (Page 77), in oder to copy it into Station 1/Management system 1 .

=> **Station 1 / Management system 1:**
Via menu **Edit > Copy NIT** (Page 78) copy the NIT from Station 2/ Management system 2, stored as *.oni fils, into Station 1/Management system 1.

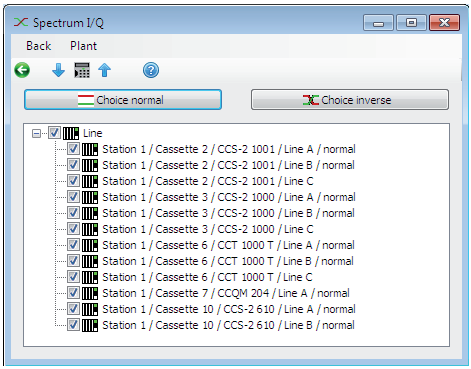
=> **Now both stations/management systems contain an identical NIT.**

SPECTRUM I/Q

Via this menu you can invert the spectral position of the user signal.

- Select menu item **Edit > Spectrum I/Q**.

—> This function can also be selected by the context menu (right mouse button).


Spectrum I/Q
Back
Plant
Choice normal
Choice inverse
Line
Station 1 / Cassette 2 / CCS-2 1001 / Line A / normal
Station 1 / Cassette 2 / CCS-2 1001 / Line B / normal
Station 1 / Cassette 2 / CCS-2 1001 / Line C
Station 1 / Cassette 3 / CCS-2 1000 / Line A / normal
Station 1 / Cassette 3 / CCS-2 1000 / Line B / normal
Station 1 / Cassette 3 / CCS-2 1000 / Line C
Station 1 / Cassette 6 / CCT 1000 T / Line A / normal
Station 1 / Cassette 6 / CCT 1000 T / Line B / normal
Station 1 / Cassette 6 / CCT 1000 T / Line C
Station 1 / Cassette 7 / CCQM 204 / Line A / normal
Station 1 / Cassette 10 / CCS-2 610 / Line A / normal
Station 1 / Cassette 10 / CCS-2 610 / Line B / normal

In the menu the lines of all cassettes are listed, possible to set the spectral position.

- Via the check boxes select from which lines you would like to change the spectral position (check box marked).
- Use button Choice normal in order to switch the selected lines to spectral position "normal".
- Use button Choice inverse in order to switch the selected lines to spectral position "inverse".

—> This function is also possible in the output settings of the corresponding cassettes.

—> **The changes are only effective when they were sent to the plant**.

Close the menu:

- Close the menu via the menu item **Back** or buttons / .

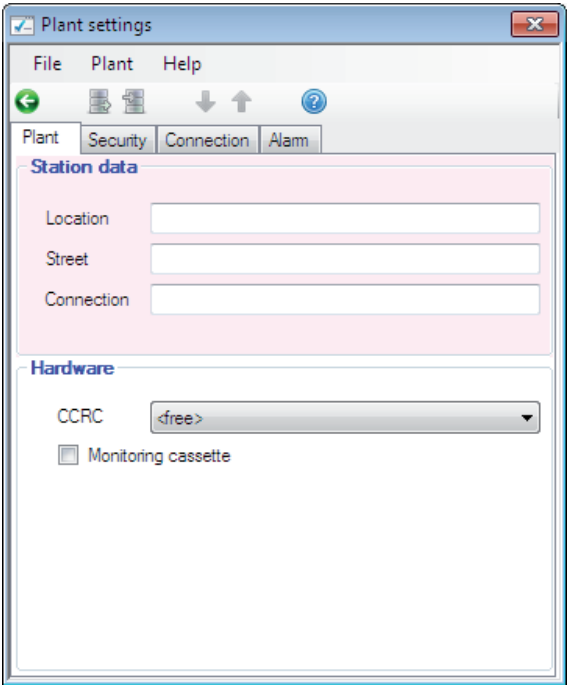
PLANT > SETTINGS

Configure a management unit via this menu.

—> For a connection via COM port (in situ connection) no plant settings are necessary.

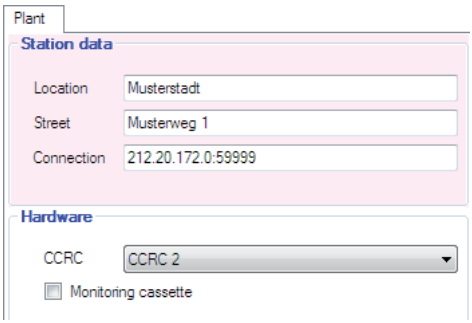
- Select menu item **Edit > Plant > Settings**.

—> This function can also be selected by the context menu (right mouse button).



TAB "PLANT":

- Herein enter data of the plant.



—> This data are for information only and will be transmitted in error messages.
This helps to keep track if you have to manage several plants.

- Select your management unit in drop-down menu **"CCRC"**.

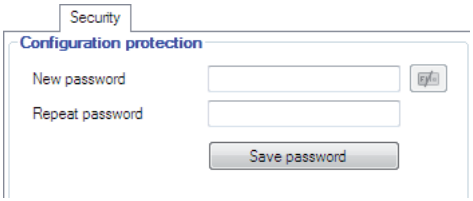
—> Dependent on your selection only needed configuration fields are enabled.

- Activate the check box beside **"Monitoring cassette"** if a monitoring cassette is used in your plant.

—> Only with this check box activated the settings for error messages are enabled.

TAB "SECURITY":

Herein you can enter a password for the remote access to the plant if a management unit is selected.



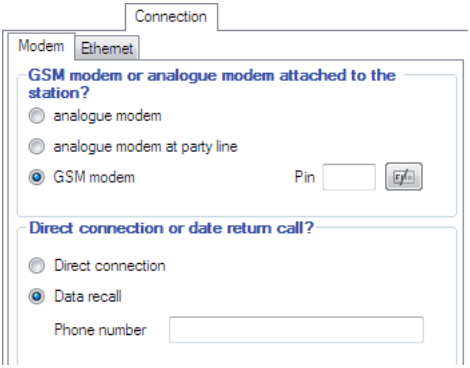
—> This password will be asked for when establishing a connection. By default no password is assigned.

- Enter your desired password in field **"New Password"**.
- Enter your desired password in field **"Repeat password"** again.
- Click to button Save password in order to save the password.

—> Using button you can change the indication of the password from "visible" into "••••••" .

TAB "CONNECTION" > "MODEM":

If a management unit is connected via modem, the connection settings needed are to be done in this tab.



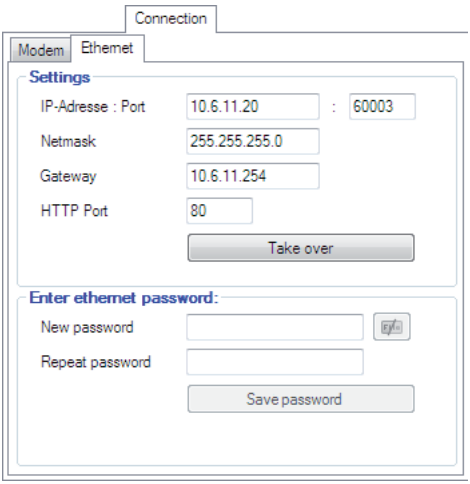
- Select the kind of modem connected to the management unit. If GSM modem (mobile phone) is selected enter the pin number of its telephone card in field "Pin number".

—> Using button you can change the indication of the pin from "visible" into "••••••" .

- Select "Direct connection" or "Data recall".
  At "Direct connection" the plant answers the telephone call.
  At "Data recall" the plant does not answer the telephone call, but tries to identify the phone number and calls back. Enter the number to be called back in field "Phone number" if an identification of the number does not work.

TAB "CONNECTION" > "ETHERNET":

If a management unit is connected via LAN, in section "Settings" all network settings needed are to be done.



—> For connection via Internet (especially for remote maintenance) network knowledge is required. If you are not familiar with the terms in section "Settings" please contact your system administrator.

—> The management unit is preset in the factory:

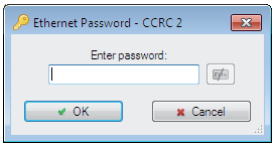
	CCRC 2
IP:	192.168.0.120
Mask:	255.255.255.0
Port:	60002
Gateway:	192.168.0.1
HTML Port:	80

—> If a different IP address range is used in the network the plant is installed or the preset IP address is already in use, the settings must be changed accordingly. Therefore observe the assembly instruction of the management unit.

—> Only use ports in the range of 35000 – 60100 or 61000 – 65000!

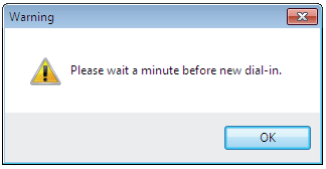
- Enter the settings required for the network (the plant is installed).
- Click to button Take over

—> A connection to the plant must be activated ( ).
Otherwise menu "connection settings" appears, in order to activate a connection.



- Enter the password (default is "TRIAX") and confirm it with button OK.

—> The data are sent to the management system.
—> The management unit restarts (ca. 1 minute).



The Ethernet password can be changed in section "Enter ethernet password".

- Enter the desired password in field **"New password"** and (for confirmation) in field **"Repeat password"**.
- Click to button Save password.

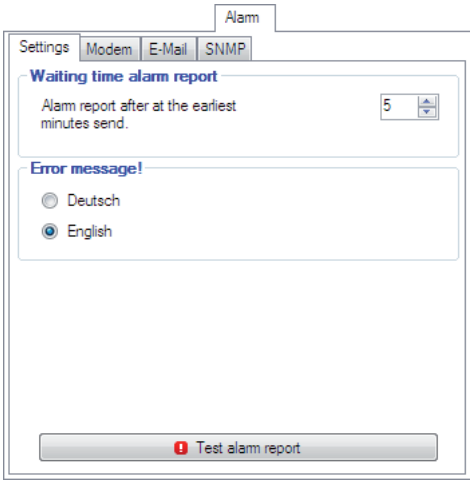
—> Like in section "Settings" the modification will be transmitted directly to the management unit.

TABS FOR THE ALARM SETTINGS:

The remaining tabs help configuring the alarm messages. Therefore a monitoring cassette CCMC 6000 must be installed. The check box " Supervision cassette CCMC available" must be activated in section "Station data".

TAB "ALARM" > "SETTINGS":

Herein enter the time interval from the appearance of an error until the error message will be sent as well as the language of the error message.



- Perform the desired settings.

Alarm test:

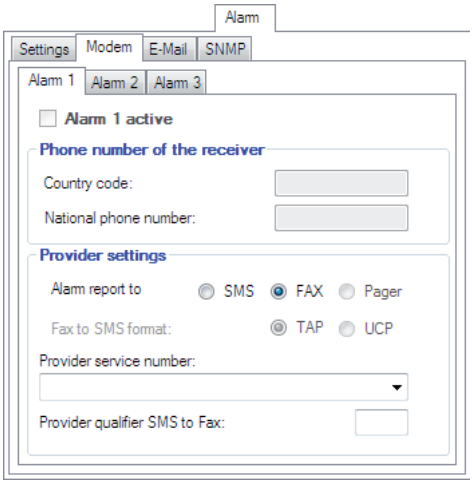
- Click on button

A test alarm report will be sent according to the alarm settings done in menu "Plant settings" (Page 81).

TAB "ALARM" > "MODEM":

(only CCRC 8)

If a management unit is connected via modem, all settings to send an error message as SMS or fax are to be done in this tab.



Three recipients for error messages can be entered (Tabs Alarm 1, 2 and 3).

- Activate tab "Alarm 1".
- In section "Phone number of the receiver" enter the "Country code" (e.g. 0049 for Germany) and the "National phone number" (e.g. 0891234).
- In section "Provider settings" select whether the message should be sent as a SMS, a fax or to a pager and select the transmission format supported by the provider (TAP or UCP). Enter the service number (SMSC) of the provider and its qualifier if a SMS should be converted into a fax.
- Activate the alarm with check box "Alarm 1 active".

—> The alarms 2 and 3 will be set analogous to alarm 1.

TAB "ALARM" > "E-MAIL":

(only CCRC 2)

If a management unit is connected via LAN, all settings to send an error message as e-mail are to be done in this tab.

- In section "E-mail settings" enter the data needed in order to send an e-mail via your e-mail account:
  - Provider: SMTP server address of the provider.
  - User: Your e-mail account address.
  - Password: Your password needed in order to send e-mails.
  - Subject: Individual text

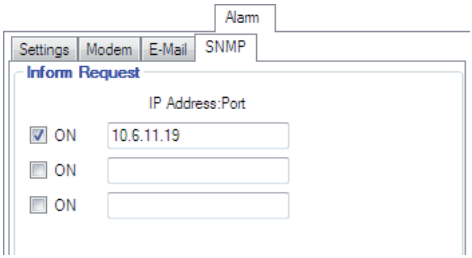
—> Standard SMTP port 25 is used to send e-mails.

- Enter up to 5 recipient e-mail addresses in section "E-mail addresses" which should receive the error message.
- Activate the e-mail addresses via the corresponding checkbox.

TAB "ALARM SNMP-INFORM REQUEST":

(only CCRC 2)

If a management unit is connected via LAN, all settings required to send an error message as SNMP Inform Request are to be done in this tab.



Enter up to 3 IP addresses which should receive the error message and activate them via the corresponding check box.

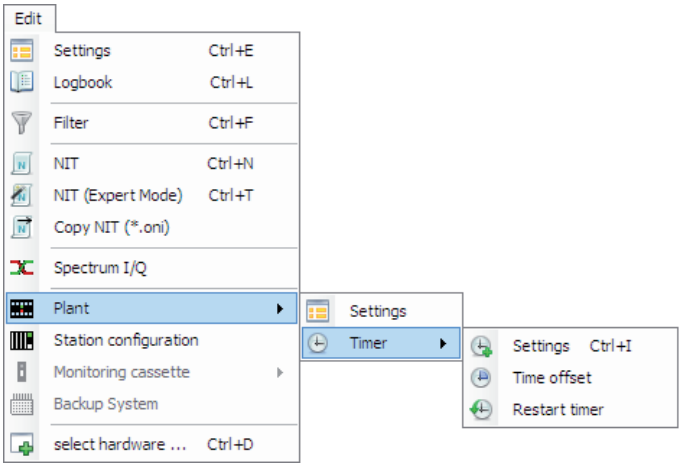
—> In case of an error message it will be sent to the activated IP addresses as SNMP Inform Request.

See below the structure of the error message:

```
Seq {
  Int =1; SNMP Version
  Str =public; Community String
  Inform {
    Int =6; RequestId
    Int =1; Error
    Int =0; ErrorIndex
    Seq {
      Seq {
        OID =1.3.6.1.4.1.29343.1.0.0.1
        Str =Alarm report: 1 Channel in Nuremberg (Tel.: 212.20.172.90:60003) been can-
celled
      }
    }
  }
}
```

—> **The changes are only effective when they were sent to the plant ⬆.**

PLANT > TIMER

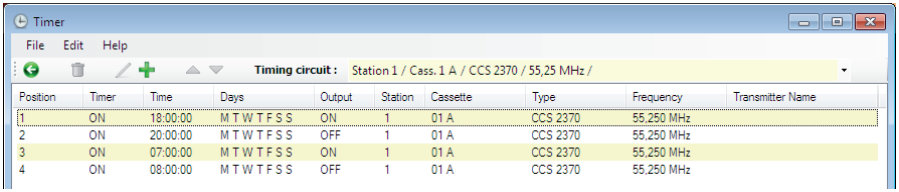


Via this menu the output of analogue cassettes which support this function can be switched on and off - time controlled.

—> For this function a management system is required.

- Select menu item **Edit > Plant > Timer > Settings** auswählen.

—> This function can also be selected by button or the context menu (right mouse button).
—> This function is controlled by the management unit, so any changes must be transferred to the management unit.
—> The plant must contain a cassette which can forward the time to the management unit (timing circuit).
—> A maximum of 100 timers are possible.


Timer
File Edit Help
Timing circuit : Station 1 / Cass. 1 A / CCS 2370 / 55,25 MHz /
Position Timer Time Days Output Station Cassette Type Frequency Transmitter Name
1 ON 18:00:00 M T W T F S S ON 1 01 A CCS 2370 55,250 MHz
2 ON 20:00:00 M T W T F S S OFF 1 01 A CCS 2370 55,250 MHz
3 ON 07:00:00 M T W T F S S ON 1 01 A CCS 2370 55,250 MHz
4 ON 08:00:00 M T W T F S S OFF 1 01 A CCS 2370 55,250 MHz

DEFINE A TIMING CIRCUIT:

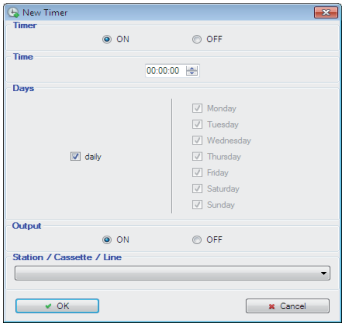
In the selecting menu "Timing circuit:" all cassettes are shown which can forward the time to the management unit.

—> Cassettes with timer functionality are shown in menu **Help > Cassettes as a timer** as well as in column "info" of the "Portfolio of cassettes" (Page 35) marked by "Timing circuit".

- Select the desired timing circuit in the selecting menu (Station/Cassette/Linie) with button .

DEFINE A NEW TIMER:

- Open the menu **Edit > New Timer** or click on button .
- Activate (ON) or deactivate (OFF) the timer in section "Timer".
- Enter the time and the days the timer is desired.
- In section "Output" select, whether the timer should switch on or off the output of the cassette.



—> Only one switching operation is possible for each timer. In order to switch a cassette on and off, two timers must be defined.

- In section "Station/Cassette/Line" select the cassette (and the output line A or B), to be switched.
- Confirm the timer with button OK.

EDIT A TIMER:

- Activate the line of the timer which is to edit.
- Open menu "New Timer" via menu item **Edit > Edit selection** or button .
- Edit the settings and confirm the changes with button OK.

DELETE A TIMER:

- Activate the line of the timer which is to delete.
- Delete the timer via menu item **Edit > Delete timer** or button .

SORT TIMER:

With this function the sequence of the timer in the overview can be changed.

- Activate the line of the timer which is to shift.
- Shift the selected timer upwards or downwards by menu item **Edit > Up** / **Down** or with buttons .

Close the timer menu:

- Close the menu via the menu item **File > Back** or buttons / .

—> This timer function is controlled by the management unit, so any changes must be transferred to the management unit.

TIME OFFSET:

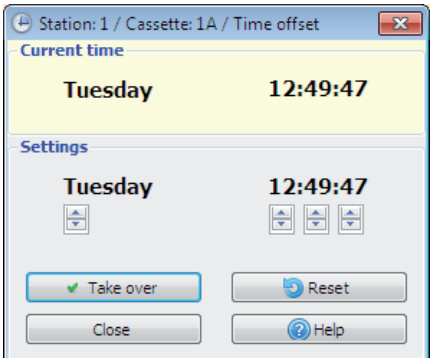
—> For this option a cassette suitable as timing circuit must be set in menu **Edit > Plant > Timer > Settings / Define a timing circuit** (Page 91).

In this menu a time offset (correction, time zone etc) can be entered for the time provided by the timing circuit. This offset is stored in the management unit.

—> If the time provided from the timing circuit does not correspond to the local time, this setting is important for a correct timer function.

- Select menu item **Edit > Plant > Timer > Time offset** auswählen.

—> If no connection to the plant is activated, menu "connection settings" appears, in order to activate a connection.



—> In section "Current time" the time provided by the timing circuit + the stored time offset is displayed.

Adjust a time offset:

- Adjust desired day and time using buttons .
- Store the time offset with button Take over.

—> After that in section "Current time" the modified time is displayed.

Reset the time offset:

- Reset (delete) the stored time offset with button Reset.

—> After that in section "Current time" the time **without** time offset is displayed.

- Close the menu with button Close.

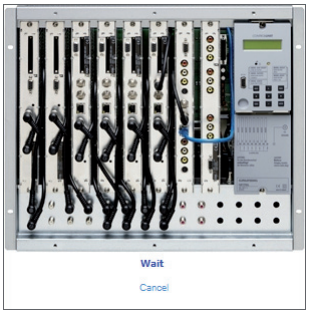
RESTART TIMER:

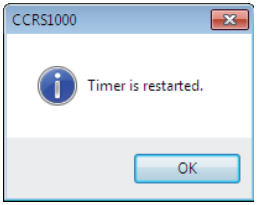
This option starts the timer programmed in menu **Edit > Plant > Timer > Settings**.

—> If for example due to maintenance work the switching states were modified or new timer are set, the switching states will be brought into the correct order by this option.

- Select menu item **Edit > Plant > Timer >** **RESTART TIMER** auswählen.

—> If no connection to the plant is activated, menu "connection settings" appears, in order to activate a connection.





—> The target state at the current time is set.

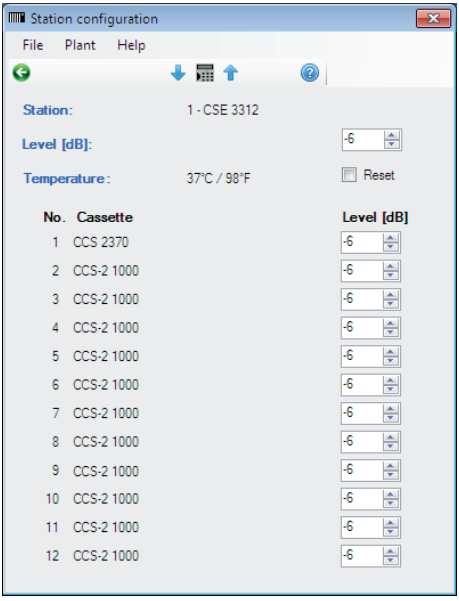
STATION CONFIGURATION

The output level of stations and cassettes equipped with an electronic level controller can be set via this menu. The stored maximum temperature can be reset.

—> If button becomes "active" after selecting a station in the left window (tree structure) of the CCRS 1000 the station is equipped with an electronic level controller.
Access for this menu is only possible via this button.

—> The setting of the output level of cassettes is possible from the control units software version V44 (BE-Remote) on.

- Click to button an.



- Adjust the output level of the station via buttons to the desired value (0…-6dB).
- Adjust the output level of the corresponding cassette via the corresponding buttons to the desired value (-25…0dB).
- Activate the check box "Reset" in order to reset the stored temperature.
- Send the setting to the station .

—> Using button the current values of the plant can be read out again.

MONITORING CASSETTE

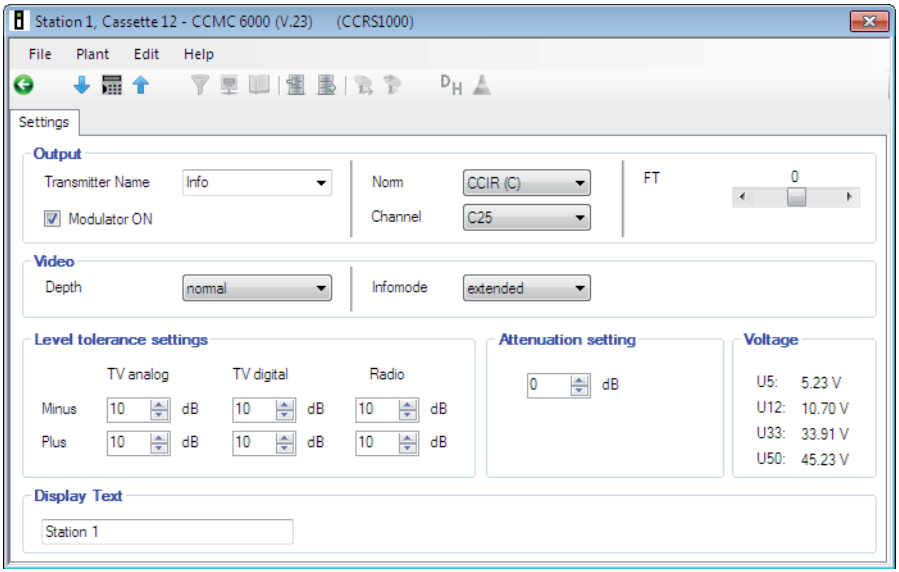
Via this menu a connected monitoring cassette can be configured.
Using a monitoring cassette the output signals of a broadband cable system can be monitored in the following frequency ranges:
Analogous TV ..... 48,25…855,25 MHz
QAM signals ..... 306,00…858,00 MHz
FM band stations ..... 87,50…108,00 MHz
Furthermore an info channel is fed into the cable system displaying the channel assignment, inclusive the channel names which are detected from the RDS resp. VPS data.
The monitoring cassette must be assembled according to its assembly instruction, a channel search must be done.

—> Only PAL, FM and DVB-C, but no DVB-T channels can be monitored.

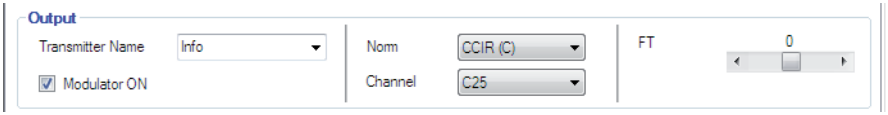
- Read the data of the monitoring cassette .

SETTINGS

- Select menu item **Edit > Monitoring cassette > Settings**.

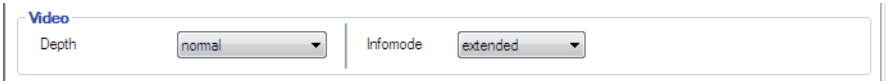


Section Output:



- Enter the transmission parameters of the info channel and switch it on or off with check box "Modulator On".

Section Video:



Modulation "Depth":
The modulation depth can be decreased (-5%, -10%) if sound interferences dependent on the picture content occur.

Info channel "Infomode":
Via this info mode setting the informations to be transmitted can be selected. At display mode "**extended**" following transmitter data are displayed in the OSD menu "Info channel":

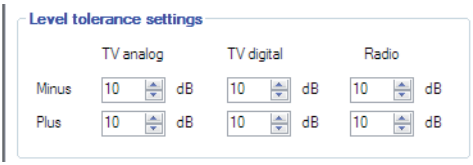
- At analogue TV channels:
  Channel, name and HF level in dBµV.
- At digital TV channels:
  Channel centre frequency in MHz, symbol rate in MSymbols/second, BER (Bit error rate) and HF level in dBµV.
- At FM band stations:
  Frequency in MHz, RDS name, HF level in dBµV.

Kanal	Name	BER	dBµV
C 2	BR-3		63
C 3	ARD		62
C 4	ZDF		64
426,00	6,900 Ms 1	e-7	51
434,00	6,900 Ms 1	e-7	53
442,00	6,900 Ms 1	e-7	51
95,15	Bayern 3		62
104,60	Radio F		63
Station 1		Seite 1/6	

At display mode "**normal**" of the OSD menu "Info channel" the HF levels (dBµV) and the BER (Bit-Error-Rate) are not displayed, but the measuring for the monitoring is still done in the background.

Kanal	Name
C 2	BR-3
C 3	ARD
C 4	ZDF
426,00	6,900 Ms
434,00	6,900 Ms
442,00	6,900 Ms
95,15	Bayern 3
104,60	Radio F 63
Station 1	Seite 1/6

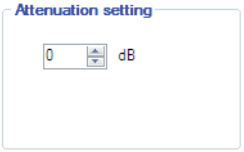
Section "Level tolerance settings":



- Adjust the level tolerance range of the monitored signals.

—> Exceeding the tolerances longer than the time frame set (Page 86) results in an error message.

Section "Attenuation setting":

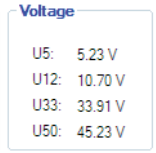


Herein attenuations inserted between the output of the head-end station and the input of the monitoring cassette can be entered in order to take it in consideration for the monitoring (offset).

—> Using the measuring output of a CSE 3312, enter the 20dB attenuation of the measuring output, in order to get the actual value of the stations output level.

- Enter a corresponding attenuation.

Section "Voltage":



Herein the operating voltages (+5V, +12V, +33V und +50V) of the head-ens station are displayed.

Section "Display Text":

- Enter the text which should be displayed in the footer of the info channel (Page 97).

—> **The changes do not take effect until they are sent to the plant .**

SUPERVISION LIST

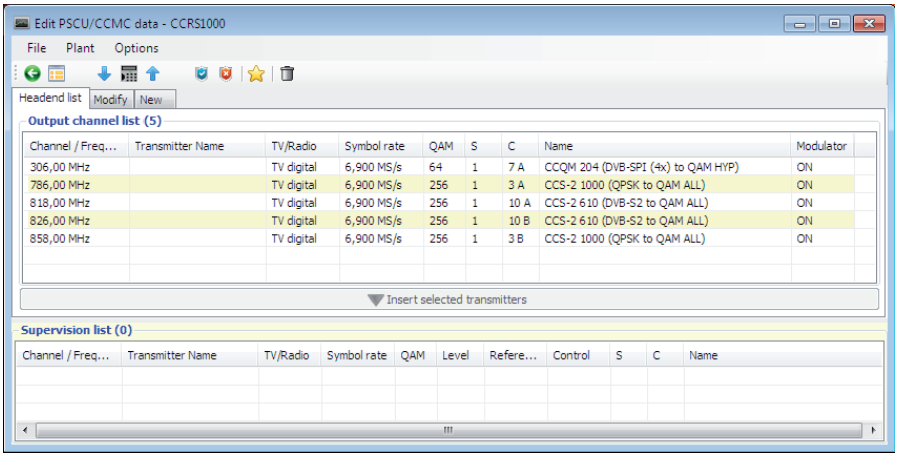
- Select menu item **Edit > Monitoring cassette > Supervision list**.

—> If the supervision list is still empty tab "Headend list" is activated. If already channels are present in the supervision list tab "Change" is activated.

—> The supervision list is also displayed in tab "Supervision list" of the main window (Page 34).

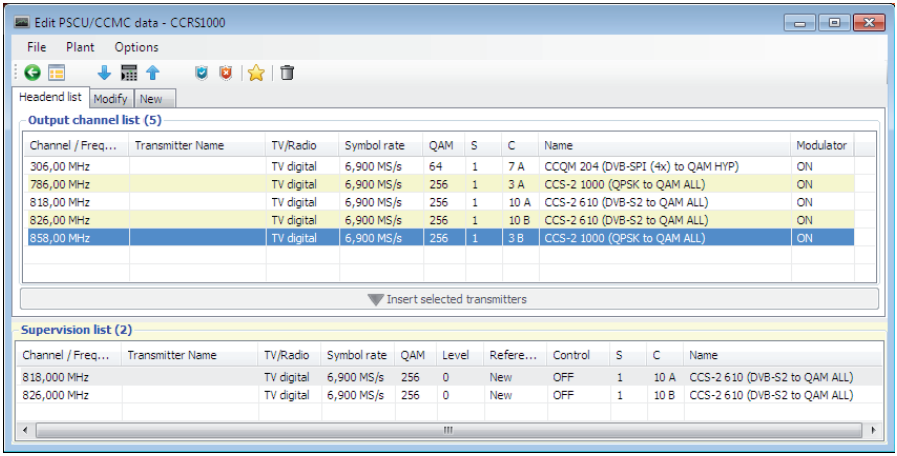
Insert transmitter from head station:

- Activate tab "Headend list".



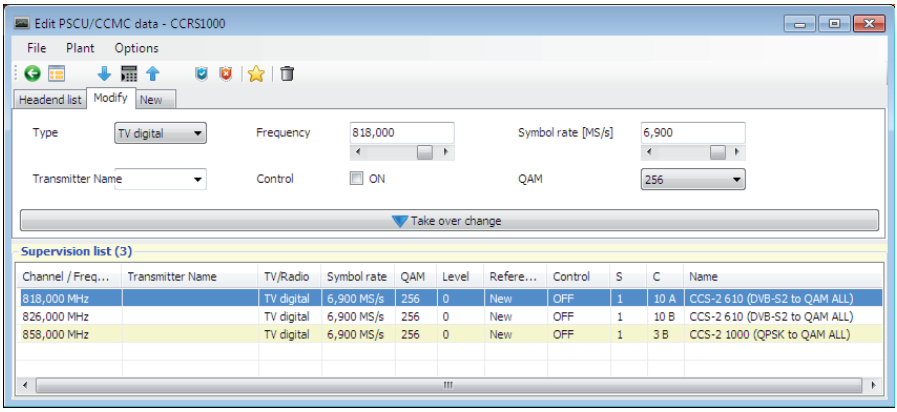
—> In section "Supervision list" the output signals found during the channel search of the monitoring cassette are shown.

- Select all transmitters to be monitored in the "Headend list" and insert them into the "Supervision list" using button "Insert selected transmitters".



<u>Modify transmitter:</u>

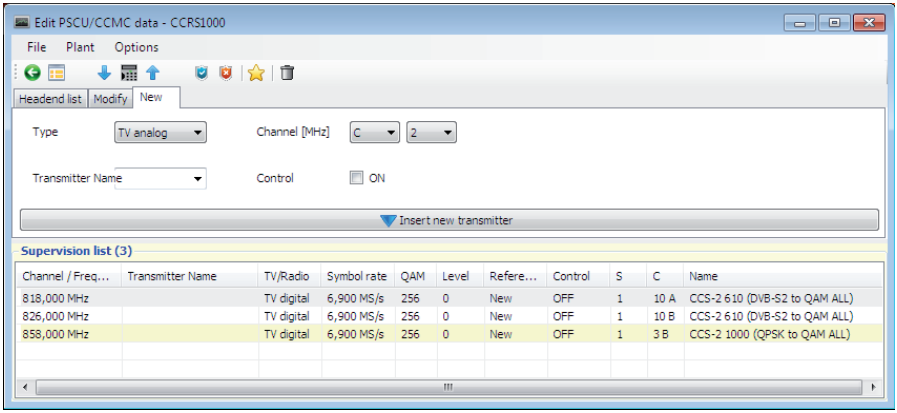
- Activate tab "Modify".



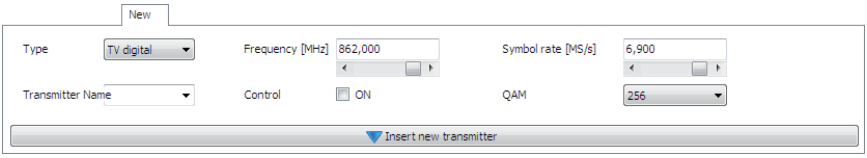
- Activate the transmitter to be changed in the supervision list.
- Enter the changes in section "Modify".
- Take over the modified channels into the "Supervision list" using button "Take over change".

Add a new transmitter:

- Activate tab "New".



- In section "New" enter "Type", "Channel" resp. "Frequency" and the transmitter name. If "Type" is set to "TV digital" the kind of modulation (QAM 4...256) and the symbol rate must be entered.



Activate check box "ON" in order to monitor a transmitter.

- Insert the transmitter into the "Supervision list" using button "Insert new transmitter".

Remove a transmitter from the supervision list:

- Activate the transmitter to be deleted in the "Supervision list".
- Select menu item **Options > Delete transmitter** or button .
- In order to delete all transmitters select menu item **Options > Clear supervision list**.

Reference level:
In order to monitor level variations first reference levels must be stored. When the data of the monitoring cassette is read ( ) also the current levels of the transmitters are read (column "Level").
If no reference levels are stored (indication "NEW" in column Reference), the imported levels are used for reference.

- Activate the transmitters in the "Supervision list" whose current levels should be stored for reference levels.
- Store the levels of column "Level" for reference via menu item **Options > Level –> Reference** or click on button .
- Send the new reference levels to the cassette ( ).

Switching on ( ) and off ( ) the transmitter control individually:
If transmitters are included in the "Supervision list" and reference levels are stored it does not mean that it even will be monitored. The control can be switched on and off individually for each transmitter.

- Activate one (or several) transmitter(s) in the "Supervision list".
  Via menu item **Options > Switch control on** ( ) or **Options > Switch control off** ( ) you define which transmitters are to be monitored. In column "Control" of the "Supervision list" these settings are displayed (ON/OFF).

—> Analogue transmitters will be monitored for "level within the tolerance" and "Sync.", digital transmitters for "level within the tolerance", "locked" and "bit error", and FM transmitters for "level" and "malfunction of RDS data".

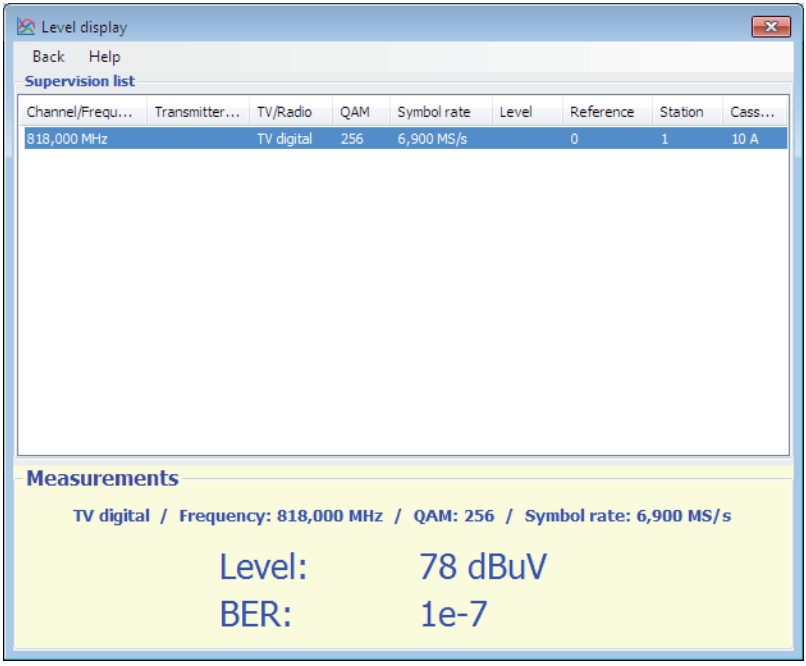
—> **The changes do not take effect until they are sent to the plant .**

Close the menu:
- Close the menu via the menu item **Back** or buttons / .

LEVEL INDICATION

- Select menu item **Edit > Monitoring cassette > Level indication**.

—> If no connection to the plant is activated, menu "connection settings" appears, in order to activate a connection.



- Select the transmitter whose level you would like to display

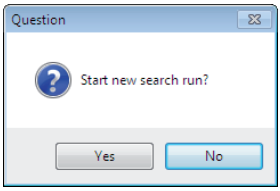
—> At analogous transmitters, level and sync. is displayed
—> At digital transmitters level and Bit error rate (BER) is displayed
—> For FM band stations the level is displayed.

START SEARCH RUN:

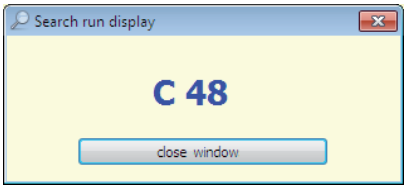
If the configuration of the plant was changed, using this function a station search of the monitoring cassette can be started in order to find new stations for monitoring.

- Select menu item **Edit > Monitoring cassette > start search run**.

—> If no connection to the plant is activated, menu "connection settings" appears, in order to activate a connection.



- Start the station search with button Yes.

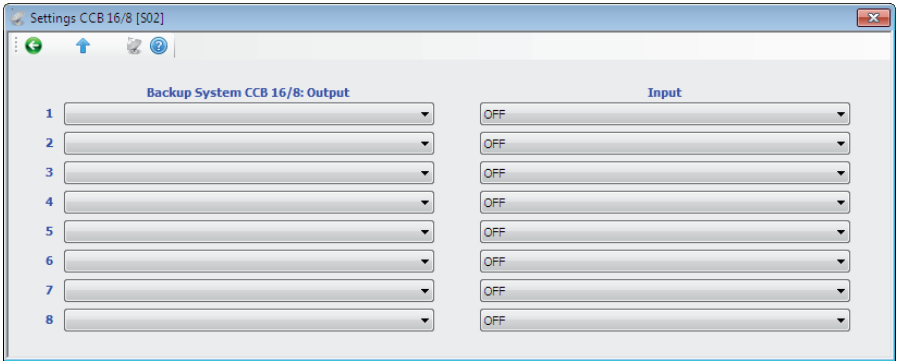


—> After that read in the new data from the monitoring cassette into the PC.

BACKUP SYSTEM

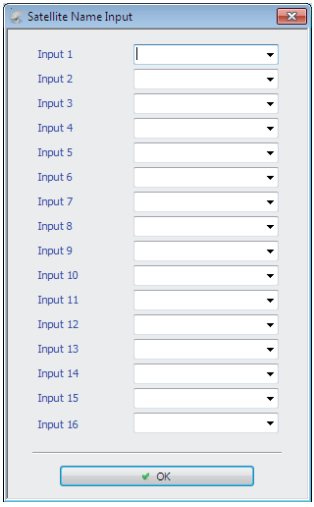
Via this menu a connected backup system can be configured.

- Select CCB 16/8 in the left window (tree structure) and click to button or…
- Select menu item **Edit >** **Backup System**.



INPUT ASSIGNMENT:

- Click on button .



- Enter the connected satellite layers for the corresponding inputs of the back-up system (e.g. astra, astra vl, eutel hl etc.).
- Confirm the settings with button .

Backup System: Output

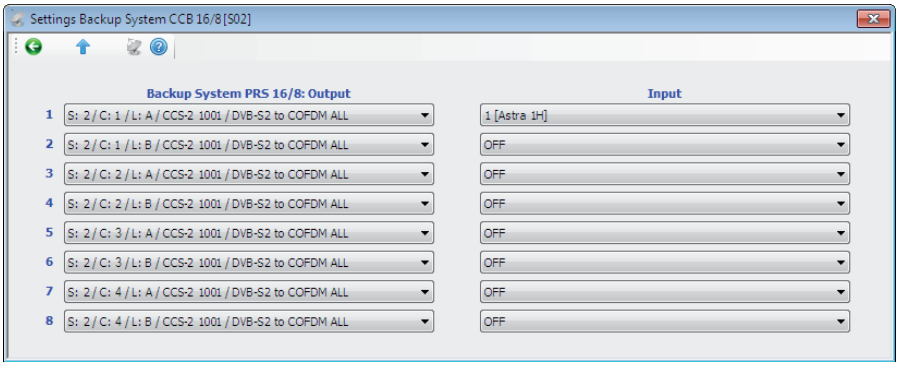
Herein the present backup cassettes will be entered.

- Select the connected backup cassettes for the corresponding outputs of the backup system (e.g. Station 2/Box:1/Linie:A/CCS-2 1001/DVB-S2-COFDM).

Backup System: Input

Herein the needed input (SAT layer) will be assigned to the backup cassettes.

- In case of a cassettes malfunction assign the needed input to the corresponding backup cassette.


Settings Backup System CCB 16/8 [S02]
Backup System PRS 16/8: Output
Input
1 S: 2 / C: 1 / L: A / CCS-2 1001 / DVB-S2 to COFDM ALL
1 [Astra 1H]
2 S: 2 / C: 1 / L: B / CCS-2 1001 / DVB-S2 to COFDM ALL
OFF
3 S: 2 / C: 2 / L: A / CCS-2 1001 / DVB-S2 to COFDM ALL
OFF
4 S: 2 / C: 2 / L: B / CCS-2 1001 / DVB-S2 to COFDM ALL
OFF
5 S: 2 / C: 3 / L: A / CCS-2 1001 / DVB-S2 to COFDM ALL
OFF
6 S: 2 / C: 3 / L: B / CCS-2 1001 / DVB-S2 to COFDM ALL
OFF
7 S: 2 / C: 4 / L: A / CCS-2 1001 / DVB-S2 to COFDM ALL
OFF
8 S: 2 / C: 4 / L: B / CCS-2 1001 / DVB-S2 to COFDM ALL
OFF

—> **The changes do not take effect until they are sent to the plant** .

Close the menu:

- Close the menu via the menu item **Back** or buttons / .

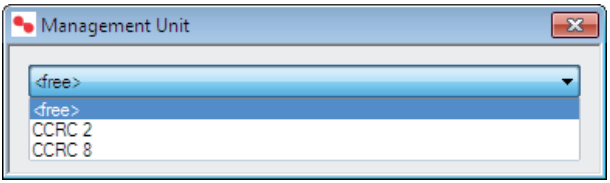
SELECT HARDWARE...

Via this menu a component (plant/station/cassette) selected in the left window (tree structure) can be changed resp. new added virtually (e.g for preconfiguration, planning etc.).

- Activate the component to be changed in the left window (tree structure).
- Select menu item **Edit > Select hardware...**.

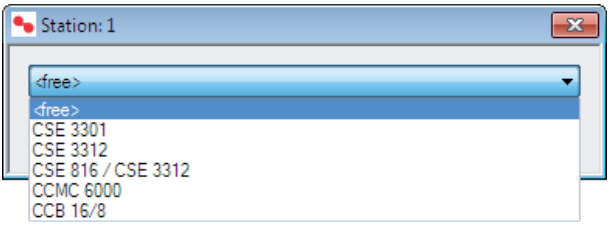
—> This function can also be selected by the context menu (right mouse button).

COMPONENT PLANT:



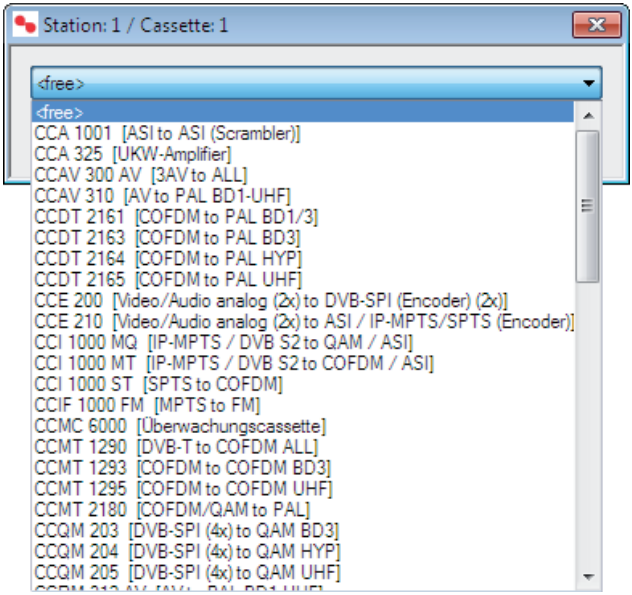
- Select the desired management unit.
- Confirm the selection with button OK.

COMPONENT STATION:



- Select the desired station.
- Confirm the selection with button OK.

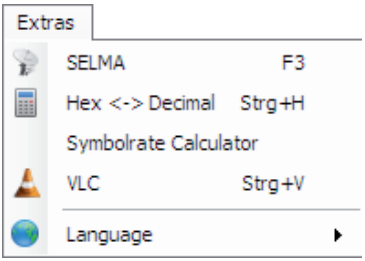
COMPONENT CASSETTE:


Station: 1 / Cassette: 1
<free>
<free>
CCA 1001 [ASI to ASI (Scrambler)]
CCA 325 [UKW-Amplifier]
CCAV 300 AV [3AV to ALL]
CCAV 310 [AV to PAL BD1-UHF]
CCDT 2161 [COFDM to PAL BD1/3]
CCDT 2163 [COFDM to PAL BD3]
CCDT 2164 [COFDM to PAL HYP]
CCDT 2165 [COFDM to PAL UHF]
CCE 200 [Video/Audio analog (2x) to DVB-SPI (Encoder) (2x)]
CCE 210 [Video/Audio analog (2x) to ASI / IP-MPTS/SPTS (Encoder)]
CCI 1000 MQ [IP-MPTS / DVB S2 to QAM / ASI]
CCI 1000 MT [IP-MPTS / DVB S2 to COFDM / ASI]
CCI 1000 ST [SPTS to COFDM]
CCIF 1000 FM [MPTS to FM]
CCMC 6000 [Überwachungscassette]
CCMT 1290 [DVB-T to COFDM ALL]
CCMT 1293 [COFDM to COFDM BD3]
CCMT 1295 [COFDM to COFDM UHF]
CCMT 2180 [COFDM/QAM to PAL]
CCQM 203 [DVB-SPI (4x) to QAM BD3]
CCQM 204 [DVB-SPI (4x) to QAM HYP]
CCQM 205 [DVB-SPI (4x) to QAM UHF]

- Select the desired cassette.
- Confirm the selection with button OK.

6.7 MENU EXTRAS

Several tools are pooled in menu "Extras:



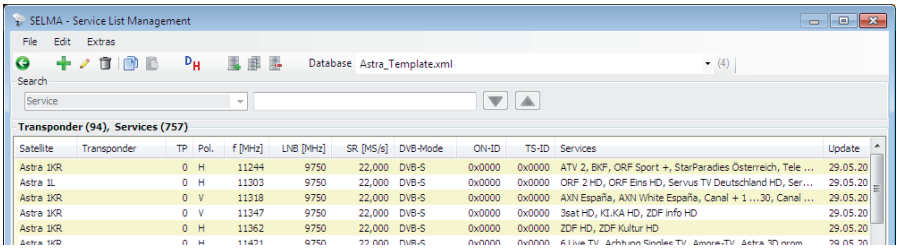
SELMA – SERVICE LIST MANAGEMENT

Herein you can create lists (databases) of transponders/services (programmes) which can be used for a quick input parameter setting of the cassettes.

—> The cassette must support this function.
—> A service list of the satellit ASTRA 19.2° is already added (Astra_Template.xml). In column "Update" you can check the state of the list.
—> **In order to modify this database, it must be "saved as..." with a new name (Page 114), because at every software update the original file will be overwritten.**

- Select menu item **Extras >** **SELMA**.

You can modify the "Astra" list as well as create new lists.


SELMA - Service List Management
File Edit Extras
Database Astra_Template.xml
Search
Service
Transponder (94), Services (757)
Satellite Transponder TP Pol. f [MHz] LNB [MHz] SR [MS/s] DVB-Mode ON-ID TS-ID Services Update
Astra 1KR 0 H 11244 9750 22,000 DVB-S 0x0000 0x0000 ATV 2, BKF, ORF Sport +, StarParadies Österreich, Tele ... 29.05.20
Astra 1L 0 H 11303 9750 22,000 DVB-S 0x0000 0x0000 ORF 2 HD, ORF Eins HD, Servus TV Deutschland HD, Ser... 29.05.20
Astra 1KR 0 V 11318 9750 22,000 DVB-S 0x0000 0x0000 AXN España, AXN White España, Canal + 1 ...30, Canal ... 29.05.20
Astra 1KR 0 V 11347 9750 22,000 DVB-S 0x0000 0x0000 3sat HD, KI.KA HD, ZDF info HD 29.05.20
Astra 1KR 0 H 11362 9750 22,000 DVB-S 0x0000 0x0000 ZDF HD, ZDF Kultur HD 29.05.20

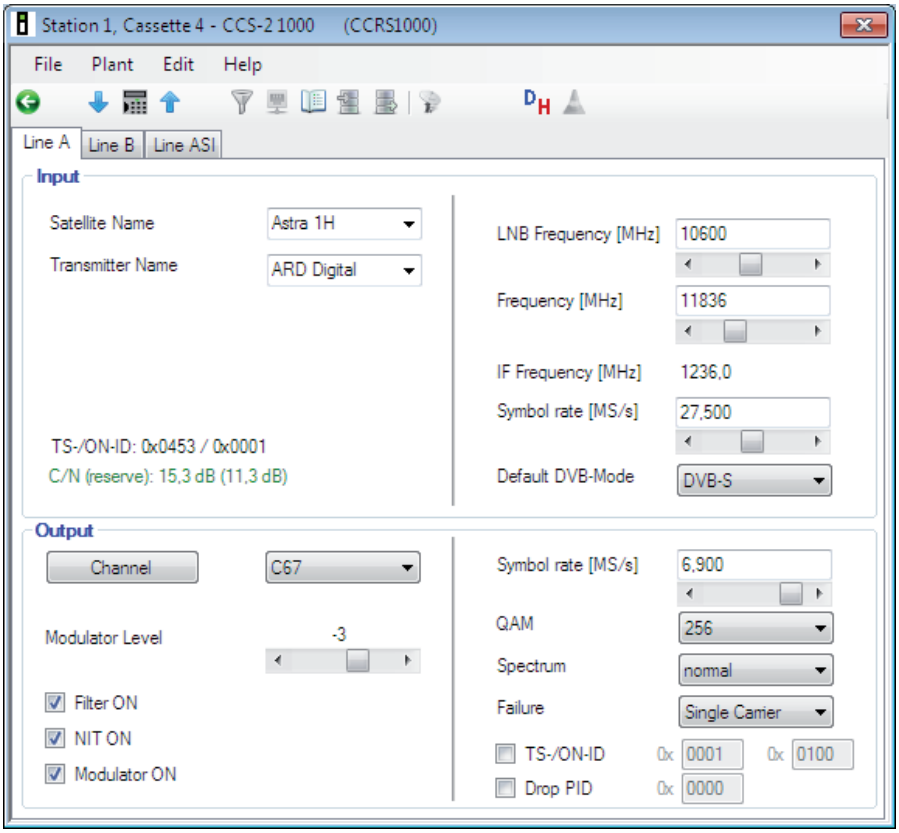
If several databases are created, select the desired database via selection field Database Astra19.2 .

TRANSFER TRANSPONDER FROM/TO CASSETTES

—> In order to transfer transponders from or to a cassette, SELMA must be called up via the settings menu of the cassette!

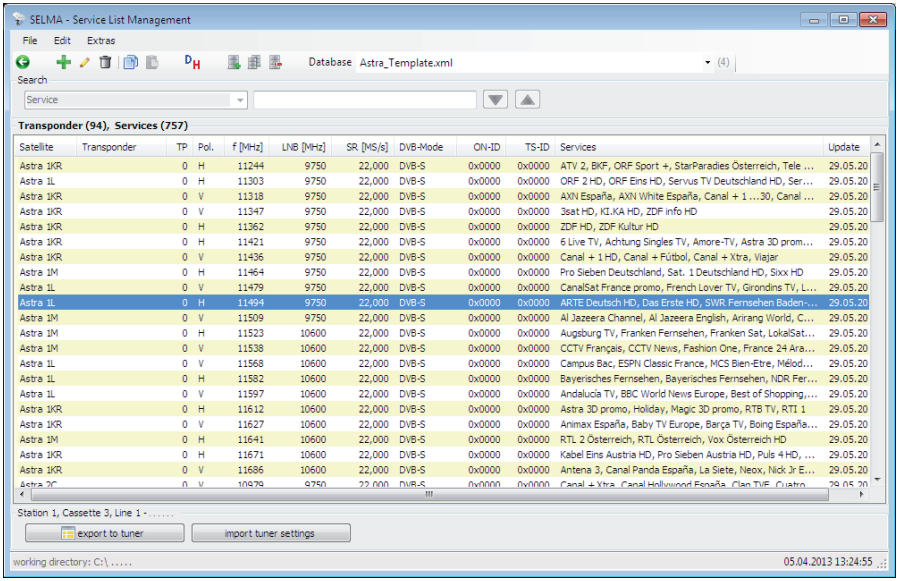
- Call up the settings menu of a cassette.

—> **In the following example, cassette CCS-2 1000 is described exemplarily in this instruction.**



- Call up menu item **Edit > SELMA** or button .

—> SELMA will be opened, in order to select or store a transponder.


SELMA - Service List Management
File Edit Extras
Database Astra_Template.xml
Search
Service
Transponder (94), Services (757)
Satellite Transponder TP Pol. f [MHz] LNB [MHz] SR [MS/s] DVB-Mode ON-ID TS-ID Services Update
Station 1, Cassette 3, Line 1 -
export to tuner
import tuner settings
working directory: C:\
05.04.2013 13:24:55

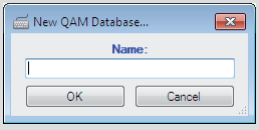
SELMA ➡ Cassette

- In order to transfer transponder data from a SELMA list to a cassette, select the transponder and click on button export to tuner.

Cassette ➡ SELMA

- In order to transfer transponder data from a cassette to a SELMA list, click on button import tuner settings.

—> The "Astra_Template.xml" can not be modified.
At every software update the original file will be overwritten.
If this list is selected, the following window appear:

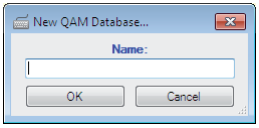


Enter a name and thereby generate a new list (page 112).

—> If another list is selected (e.g. a copy of the "Template list"; page 115), the transponder from the cassette will be added to the list.

CREATE A NEW DATABASE (LIST)

- Activate menu item **Edit > new database** or button .

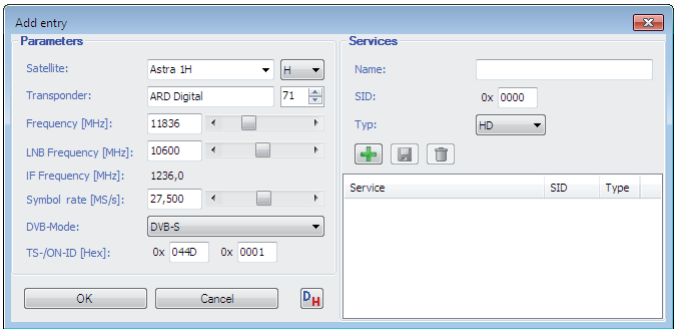


- Enter a name and click on button OK.

ADD TRANSPONDER / SERVICES

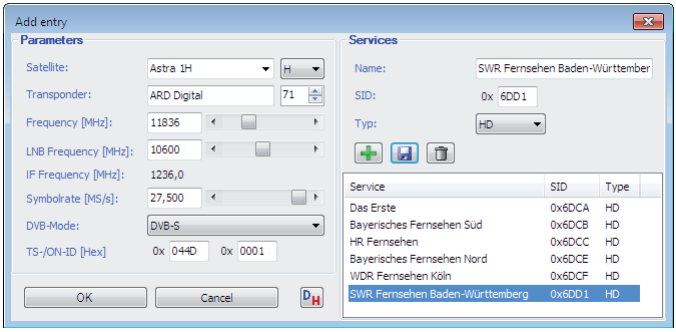
- Activate menu item **Edit > Add entry** or button .

—> This function can also be selected by the context menu (right mouse button).



- First enter the parameter of the desired transponder in section "Parameters".
- After that enter a "name", the corresponding "SID" and the "type" of service in section "Services" and click to button in order to add this service to the transponder.

—> The service appears in the list below. Enter all services of the transponder you need.



Change a service:

- Activate the service which you would like to change in the list.

—> Its data will be displayed in the corresponding input fields.

- Change the data and store the changes using button .

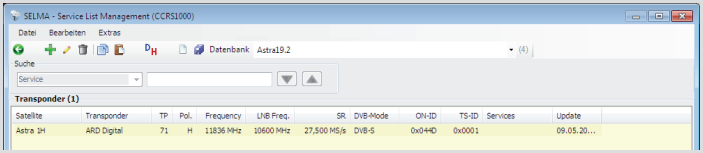
Delete a service:

- Activate the service which you would like to delete in the list.
- Delete the service using button .

Exit Menu "Add entry":

- Complete the modification with button OK.

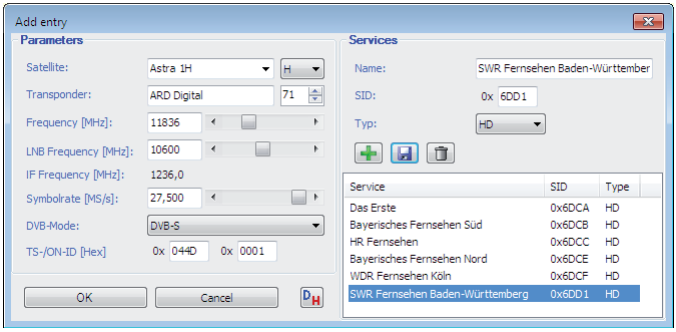
—> The transponder is added to the list.



MODIFY (A DATABASE)

- To modify a database, activate the corresponding transponder in the list and select menu item **Edit > Modify** or click on button .

—> This function can also be selected by the context menu (right mouse button).



- Modify the data and confirm the changes using button OK.

REMOVE A TRANSPONDER FROM A DATABASE

- To remove a transponder from a database, activate the corresponding transponder in the list and select menu item **Edit > Remove** or click on button .

—> This function can also be selected by the context menu (right mouse button).

COPY / INSERT

Via this functions you can copy transponders from one database into another.

- Activate the transponder to be copied in the list.
- Activate menu item **Edit > Copy** or button .
- Switch to the "target database" and activate menu item **Edit > Insert** or button .

—> This functions can also be selected by the context menu (right mouse button).

SAVE AS

Herein you can save a database under a new name e.g. to get a variant of it.

DELETE DATABASE

- Activate menu item **Edit > Delete database** or button .

DECIMAL <–> HEXADECIMAL

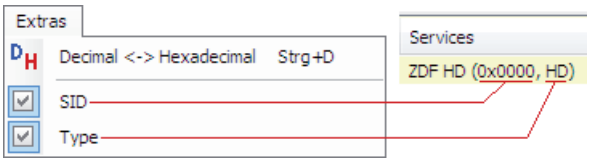
With this menu item you can change the indication (and input) of IDs from Hexadecimal to Decimal numbering system (and vice versa).

- Select menu item **Extras > Decimal <–> Hexadecimal** or click on button .

—> The hexadecimal numbering system always starts with the term "0x".

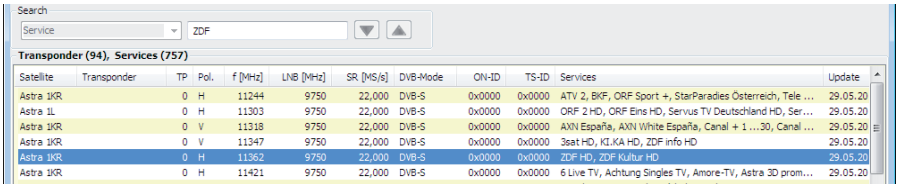
SID / TYPE

Via this checkboxes in menu "Extras" it is possible to show the service ID and the type (HD, SD, Radio or Data) of the Services in column "Services".



SEARCH

Via this function you can search for services.

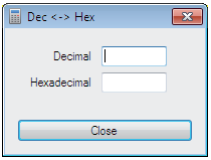

Search
Service
ZDF
Transponder (94), Services (757)
Satellite Transponder TP Pol. f [MHz] LNB [MHz] SR [MS/s] DVB-Mode ON-ID TS-ID Services Update
Astra 1KR 0 H 11244 9750 22,000 DVB-S 0x0000 0x0000 ATV 2, BKF, ORF Sport +, StarParadies Österreich, Tele ... 29.05.20
Astra 1L 0 H 11303 9750 22,000 DVB-S 0x0000 0x0000 ORF 2 HD, ORF Eins HD, Servus TV Deutschland HD, Ser... 29.05.20
Astra 1KR 0 V 11318 9750 22,000 DVB-S 0x0000 0x0000 AXN España, AXN White España, Canal + 1 ...30, Canal ... 29.05.20
Astra 1KR 0 V 11347 9750 22,000 DVB-S 0x0000 0x0000 3sat HD, K1.KA HD, ZDF info HD 29.05.20
Astra 1KR 0 H 11362 9750 22,000 DVB-S 0x0000 0x0000 ZDF HD, ZDF Kultur HD 29.05.20
Astra 1KR 0 H 11421 9750 22,000 DVB-S 0x0000 0x0000 6 Live TV, Achtung Singles TV, Amore-TV, Astra 3D prom... 29.05.20

- Enter a search term (e.g. ZDF) and start the search using buttons (downwards) or (upwards).

—> The search function is limited to the search for services (left selection field is locked).

HEXADEZIMAL <–> DEZIMAL CALCULATOR

- Select menu item **Extras >** **Hex <–> Decimal**.



If you enter a decimal or hexadecimal value into the corresponding input field, the converted value is displayed in the other field.

DECIMAL <–> HEXADECIMAL

With this menu item you can change the indication (and input) of IDs from Hexadecimal to Decimal numbering system (and vice versa).

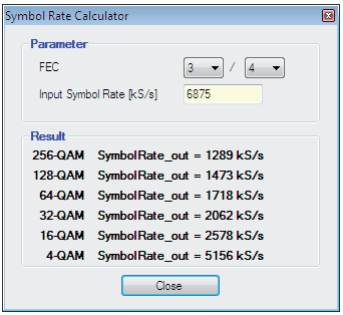
- Select menu item **Extras >** **Decimal <–> Hexadecimal** or click on button .

—> The hexadecimal numbering system always starts with the term "0x".

OUTPUT SYMBOL RATE CALCULATOR

- Select menu item **Extras > Symbolrate Calculator** auswählen.

Entering the FEC parameter and the input symbol rate the output symbol rates for the different modulation types.

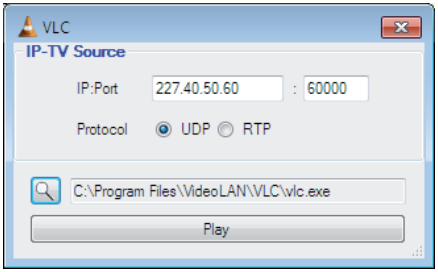


VLC

If the "VLC media player" is installed on the PC, the playback of IPTV streams via the VLC player can be started via the CCRS 1000.

—> VLC is a free and open source cross-platform multimedia player and framework that plays most multimedia files as well as DVD, Audio CD, VCD, and various streaming protocols.
For information and download see http://www.videolan.org

- Select menu item **Extras > VLC** or button .



- Click on button and select the installation path of the VLC player.

—> The installation path must only be assigned at the first start.

- Enter the IP address, the port and the protocol of the IPTV stream, you would like to playback and start with button Play.

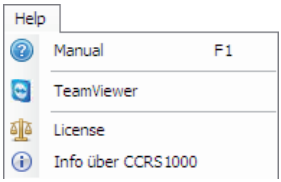
LANGUAGE

In menu "Language" select you preferred the menu languages.

—> The language of system internal buttons depend on the display language selected at the PC system settings resp. the installed language packs of the operating system.

6.8 MENU HELP

In menu "Help" tools and functions are collected which will support you at your work with the CCRS 1000.



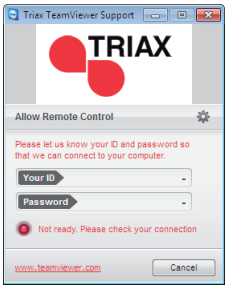
MANUAL

Via this Menu you call up the internal programme help.
During the installing process of the software the operating instruction is copied onto your PC and can be called up via this menu item. Therefore an application which can display PDF files (e.g. Adobe Acrobat Reader).

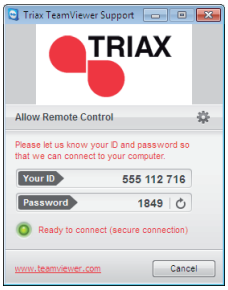
—> If button is integrated in the toolbar of a window, the operating instruction can be called up..

TeamViewer

A TeamViewer Module which runs without installation has been included for support. Here you can give our technicians a controlled access to your PC, in order to get remote support to solve specific problems.

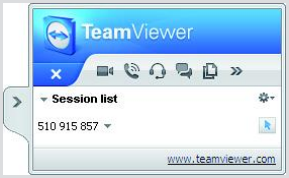


- Wait until the connection indicator changes from "red" to "green" and your ID (e.g. 555 112 716) and a password (e.g. 1849) is displayed.



- If you are prompted, tell our technician your "ID" and the "password".

—> AT every TeamViewer restart you will get a new password.
—> The connection is displayed at the lower right screen edge.

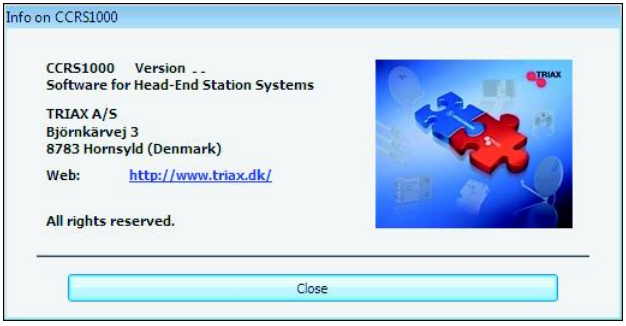


LICENCE

Via this menu item you can call up the software licence agreement, which you already accepted during installation process.

INFO ON ...

Via this menu item you call up the programme information.



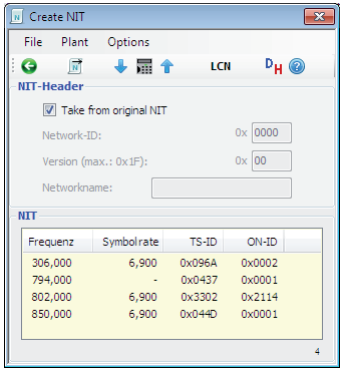
7 LCN – Logical Channel Numbers

LCN is a static, virtual assignment of programme numbers for services. Suitable receivers use these LCN information in order to sort the channels after a station search. The LCN information is part of the Network Information Table (NIT).

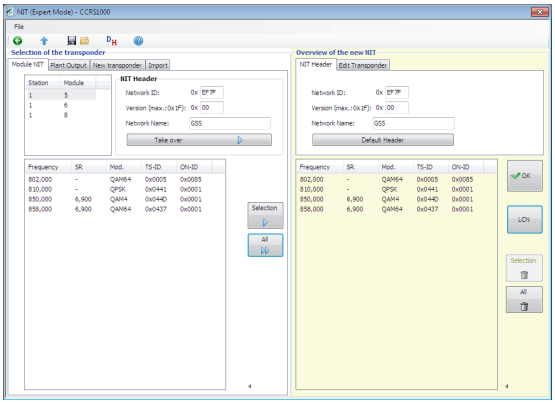
—> At present LCN version 1 is supported.

7.1 Call up the LCN menu

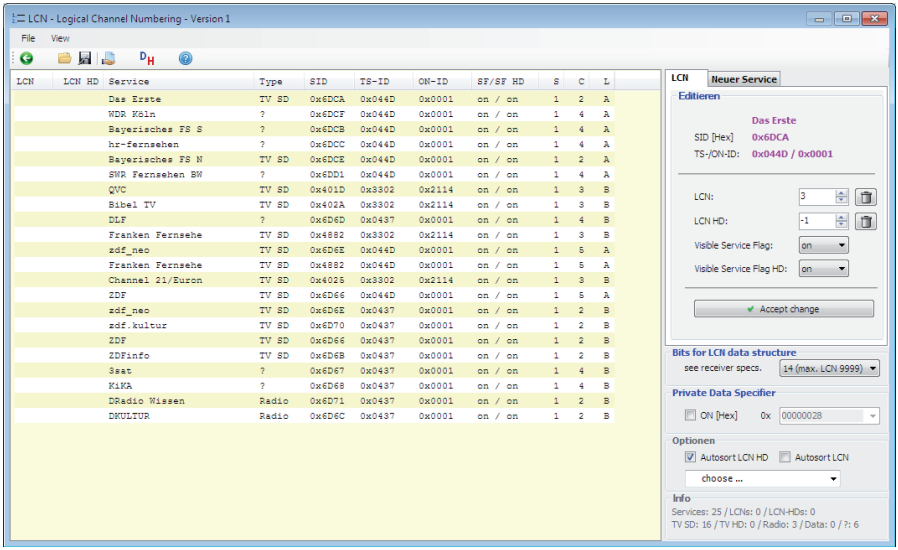
- In window "Create NIT"…



… select the menu item **Options >** **LCN** resp. click on button LCN, or in the NIT Expert Mode (Page 68)…

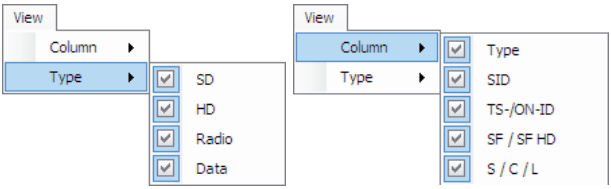


… click on button LCN.


LCN - Logical Channel Numbering - Version 1
File
View
LCN
LCN HD
Service
Type
SID
TS-ID
ON-ID
SF/SF HD
S
C
L
Das Erste TV SD 0x6DCA 0x044D 0x0001 on / on 1 2 A
WDR Köln ? 0x6DCF 0x044D 0x0001 on / on 1 4 A
Bayerisches FS S ? 0x6DCB 0x044D 0x0001 on / on 1 4 A
hr-fernsehen ? 0x6DCC 0x044D 0x0001 on / on 1 4 A
Bayerisches FS N TV SD 0x6DCE 0x044D 0x0001 on / on 1 2 A
SWR Fernsehen BW ? 0x6DD1 0x044D 0x0001 on / on 1 4 A
QVC TV SD 0x401D 0x3302 0x2114 on / on 1 3 B
Bibel TV TV SD 0x402A 0x3302 0x2114 on / on 1 3 B
DLF ? 0x6D6D 0x0437 0x0001 on / on 1 4 B
Franken Fernsehe TV SD 0x4882 0x3302 0x2114 on / on 1 3 B
zdf_neo TV SD 0x6D6E 0x044D 0x0001 on / on 1 5 A
Franken Fernsehe TV SD 0x4882 0x044D 0x0001 on / on 1 5 A
Channel 21/Euron TV SD 0x4025 0x3302 0x2114 on / on 1 3 B
ZDF TV SD 0x6D66 0x044D 0x0001 on / on 1 5 A
zdf_neo TV SD 0x6D6E 0x0437 0x0001 on / on 1 2 B
zdf.kultur TV SD 0x6D70 0x0437 0x0001 on / on 1 2 B
ZDF TV SD 0x6D66 0x0437 0x0001 on / on 1 2 B
ZDFinfo TV SD 0x6D6B 0x0437 0x0001 on / on 1 2 B
3sat ? 0x6D67 0x0437 0x0001 on / on 1 4 B
KiKA ? 0x6D68 0x0437 0x0001 on / on 1 4 B
DRadio Wissen Radio 0x6D71 0x0437 0x0001 on / on 1 2 B
DKULTUR Radio 0x6D6C 0x0437 0x0001 on / on 1 2 B
LCN
Neuer Service
Editieren
Das Erste
SID [Hex] 0x6DCA
TS-/ON-ID: 0x044D / 0x0001
LCN: 3
LCN HD: -1
Visible Service Flag: on
Visible Service Flag HD: on
Accept change
Bits for LCN data structure
see receiver specs. 14 (max. LCN 9999)
Private Data Specifier
ON [Hex] 0x 00000028
Optionen
Autosort LCN HD
Autosort LCN
choose ...
Info
Services: 25 / LCNs: 0 / LCN-HDs: 0
TV SD: 16 / TV HD: 0 / Radio: 3 / Data: 0 / ?: 6

—> All services are shown in the table.

Via menu "View" services (Type) resp. columns temporarily can be hidden.



In order to hide services resp. columns uncheck the corresponding checkbox.

7.2 Automatic LCN assignment

Herein it is possible to assign the LCNs in the order of the sorting.

Sorting

Automatic Sorting:

—> By default the table is sorted by columns C (Cassette)/L (Linie) in ascending order.

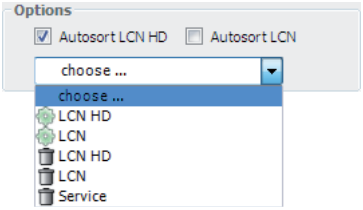
Clicking a column header will change the sorting according to the column criteria.

Manual LCN Sorting:

You can sort the services manually by "Drag and Drop".

- Click on a service and hold the mouse button depressed.
- At depressed mouse button drag the service to the desired list position.

Automatic LCN assignment



- In section "Options" select for "SD" services LCN or for "HD" services LCN HD.

—> The LCNs will be assigned in the order of the sorting.

7.3 Edit LCNs

Tab "LCN"

Manual LCN assignment:

- Click to a service in the table.

—> The service is shown in section "LCN assignment" on the right side.

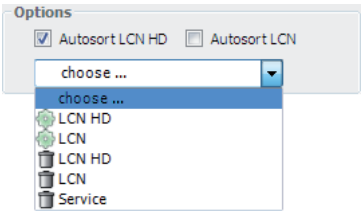
- Enter a LCN or (at HD channels) a LCN HD in the corresponding input field and click the Accept change button.

—> Due to the differentiation of LCN and LCN HD it is possible to assign the same channel number for a channel transmitted in "SD" and "HD" quality. Suited "HD" receivers will prefer the services in "HD" quality, "SD" receivers will use the service in "SD" quality.
—> The assigned LCN is shown in the table on the left side.
—> If the checkbox Autosort LCN resp. Autosort LCN HD in section "Options" is checked, the list will be sorted (in ascending order) by columns LCN/LCN HD immediately when entered a corresponding LCN.

Visible Service Flag (HD)

This setting must be set to "on" if a receiver should find the service during a station search. Setting "off" - for example - is used for channels used for software update only.

Reset all LCNs / LCN-HD assignments



- In section "Options" select for "SD" services LCN or for "HD" services LCN HD.

—> All assigned LCNs will be deleted in the table.

Reset individual LCNs / LCN-HD assignments

- Click on a service in the table.

—> The service is shown in section "LCN assignment" on the right side.

- Click on the button next to the LCN.
- Click on button Accept change.

—> The assigned LCN will be deleted in the table.

Remove individual services temporarily

- Click to a service in the table.

—> The service is shown in section "LCN assignment" on the right side.

- In section "Options" select Service.

—> The service will be temporarily deleted from the table.

Tab "Add service"

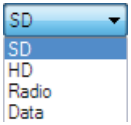
Add individual services

Via tab "Add services" individual services not included in the table can be added via tab "Add service".

- Select the corresponding TS- and ON-ID.

—> Herein all TS and ON IDs of the transponder, included in the NIT are shown for selection. If you would like to add services from other transponders, first you have to add these transponders into the NIT via the NIT expert mode (Page 72).

- Enter the SID and the desired LCN (HD).
- Select the kind of service (Type).
- Assign a name (optional).
- Click on button Accept change.



—> The added service is shown in the table on the left side.
—> The name is only displayed in the table and will only be stored in a LCN backup ( ) or when the LCN is exported in form of a text file ( ) – not in a cassette!

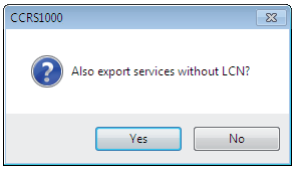
BITS FOR LCN DATA STRUCTURE / PRIVATE DATA SPECIFIER

For "LCN Data Structure" and "Private Data Specifier" IEC 62216-1 recommends the values "10 Bit" and "00000028". Receivers in German speaking regions mainly use this settings.
As in some regions (e.g. United Kingdom, Nordig, France etc.) different regulations exist, observe the country specific guidelines, if required.

BUTTONS

SAVE THE LCN LIST IN FORM OF A *.GSL FILE

- Select menu item **File > LCN backup save** or click on button .



- If you would like also to save services without LCN assignment select Yes. If you would like to save only services with LCN assignment select, you have to select No.
- Enter a file name, select the target directory and save the file using button Save.

OPEN A LCN BACKUP (*.GSL FILE)

- Select menu item **File > open LCN backup** or click on button .
- Select the corresponding file.
- Click on button Open.

—> The current LCN list will be overwritten/complemented.
—> Herein assigned names of added services can be helpful (Page 126).

EXPORT A SERVICE (LCN) LIST AS A TEXT FILE

- Select menu item **File > Export service list** or click on button .
- Enter a file name, select the target directory and save the file using button Save .

CHANGE THE INDICATION OF THE IDS (DECIMAL <–> HEXADECIMAL)

- Select menu item **File > Decimal <–> Hex** or click on button .

—> The indication of all IDs will be changed from hexadecimal to decimal (and vice versa).
—> The hexadecimal numbering system always starts with the term "0x".

7.4 COMPLETE THE LCN PROCESSING...

...AT LCN PROCESSING VIA MENU "NIT"

Close the LCN menu:

- Close the menu via the menu item **File > Back** or via button .

...AT LCN PROCESSING VIA MENU "NIT" (EXPERT MODE)

Close the LCN menu:

- Close the menu via the menu item **File > Back** or via button .
- **Complete the NIT processing using button** OK .

—> The modifications will be done – as all settings via CCRS 1000 – first in the programme (RAM). The new (modified) NIT must finally be sent to the plant .
—> **All LCN assignments will be lost if a NIT is created directly via the control unit!**

8 FINAL HINTS

As often repeated:
All modifications/configurations be done with the CCRS 1000 first are only be hold in the RAM (random access memory) of the PC. To get "active" the configuration data must be sent to the plant.

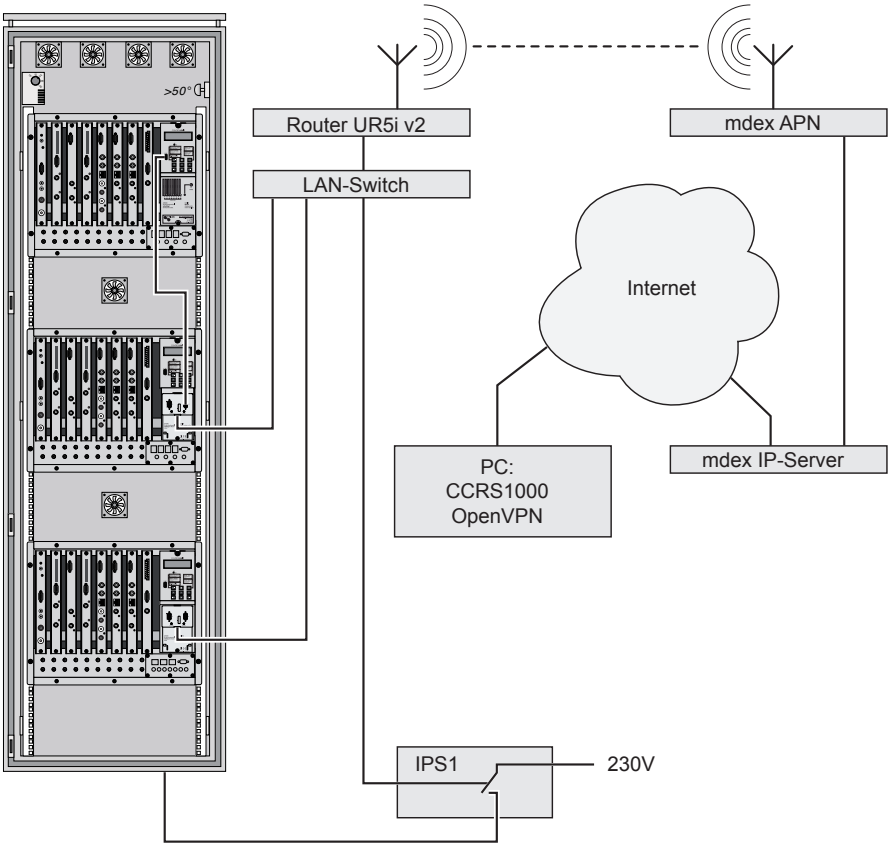
—> So it is often necessary to send modifications to the plant and after that to read the modified settings into the programme again (in order - for example - to measure modified data rates or to make modified filter settings available for transmitting to other cassettes).

ANNEX A

A1 CONNECTION PC ➡ ETHERNET ➡ UMTS-VPN ➡ MANAGEMENT SYSTEM

Assembling and configuration of a plant with included management system and UMTS router for remote control via a PC with Internet connection.

SAMPLE CONFIGURATION WITH TESTED COMPONENTS



COMPONENTS USED

– 3 x CSE 8-16 head-end station

– 2 x CCRC 2 management system

– CCRS 1000 remote control software

– LAN switch (if the switch schould also be used for IPTV data streams, a layer 3 switch, which is able to process multicast streams, is needed)

– UMTS - HSUPA VPN Router UR5i v2

– IP power switch IPS1: LAN controlled 230 VAC switch of the ELV company (www.elv.com - order no. 83514).

– mdexfixed.IP of the mdex GmbH (www.mdex.de)
APN: Access Point Name; the name of the external access point of a GPRS network. Normally the standard APNs of the network provider are configured in mobile handsets. In order to use the mdexfixed.IP the standard APN must be changed to the mdex APN.
OpenVPN: A software to create a virtual private network (VPN) via a SSL encrypted connection. The OpenSSL programme libraries are used for the encryption. OpenVPN uses UDP or IP protocol for transport. OpenVPN is a free software and supports several operating systems e.g. Linux, Windows 2000/XP etc.

FUNCTIONAL PRINCIPLE

An UMTS - HSUPA VPN Router which can be accessed via a mobile phone network is connected via LAN to the management system of the plant.
In order to get access via mobile phone network the router must have a static IP address which can be purchased e.g. from the "mdex GMBH" (mdexfixed.IP). mdex offers miscellaneous solutions for several mobile phone networks and also acts as a network provider by offering the "mdexsim".
The mdex APN must be set in the router.

Using the CCRS 1000 software on a PC with Internet access it is possible to get access to the plant via the mdex network.

Via the IP power switch IPS1 suitable components can be switched on and off via remote (for example the operating voltage of the head-end station).

CONFIGURATION SEQUENCE

- **First you need a "mdexfixed.IP"**, which can be purchased from mdex (www.mdex.de).
  You will get a confirmation mail from mdex containing all needed data.
  For this example:

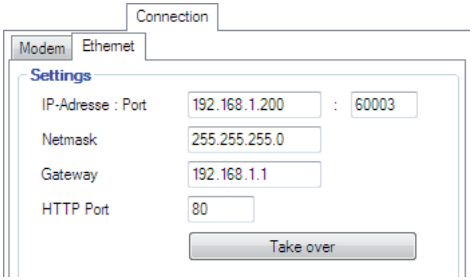
mdex access details			
	User name	Password	Product description
Internet access point (OpenVPN)	i00xxxxa	abc	fixed.IP for OpenVPN
Mobile access point	m00xxxxb@mdex.de	def	fixed.IP via Vodafone APN: cda.vodafone.de
web.direct access point	m00xxxxc	ghi	
Device addresses			
	IP address	Access type	Host name
fixed.IP via OpenVPN	172.21.88.xxx	Internet access	i00xxxxa.maxmuster-mann.mdex.de
fixed.IP via Vodafone	172.20.207.xxx	Mobil access	m00xxxxc.maxmuster-mann.mdex.de

- **Assign the IP addresses** for the components at receiving plant side.
  For this example:

Component	IP address	Port
IP address router	192.168.1.1	
IP address management system	192.168.1.200	60003
IP address IP power switch IPS1	192.168.1.201	80

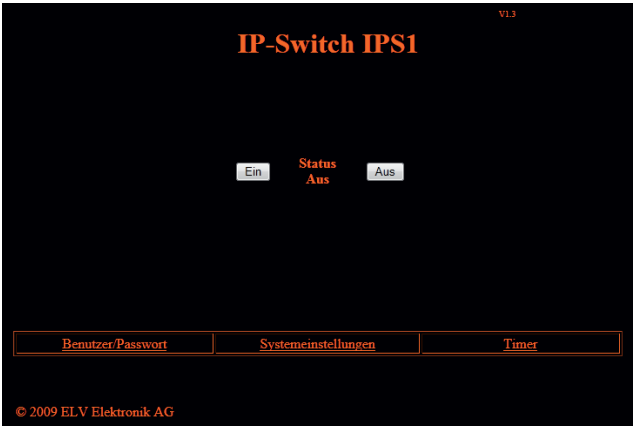
- **Configure the Ethernet settings for CCRC 2** as described in the assembly instructions of CCRC2.

Call up menu **Edit > Plant > Settings > Connection/Ethernet** (Page 84), enter the settings required for the network (the plant is installed) and click to button [Take over] in order to send the settings to the management system.

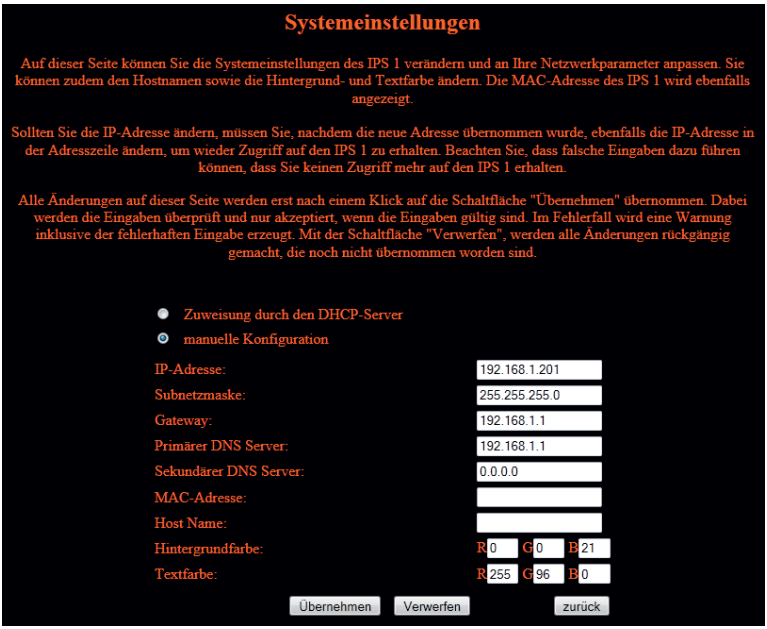


—> The specified values relate to this example.

- **Configure the IP power switch IPS1.**
  By default IPS1 is set to the static IP address 192.168.1.100, Subnetmask 255.255.0.0, Gateway 192.168.1.1, Port 80.
  Adjust your PC to a static IP address in the address range of the IPS1 (e.g. 192.168.1.2, Subnetmask 255.255.0.0).
  Connect the PC with the IPS1 via a LAN cable.
  Call up the web interface (only in German) of the IPS1 via a browser (http://192.168.1.100).



Click to button [Systemeinstellungen] (system settings).


Systemeinstellungen
Auf dieser Seite können Sie die Systemeinstellungen des IPS 1 verändern und an Ihre Netzwerkparameter anpassen. Sie können zudem den Hostnamen sowie die Hintergrund- und Textfarbe ändern. Die MAC-Adresse des IPS 1 wird ebenfalls angezeigt.
Sollten Sie die IP-Adresse ändern, müssen Sie, nachdem die neue Adresse übernommen wurde, ebenfalls die IP-Adresse in der Adresszeile ändern, um wieder Zugriff auf den IPS 1 zu erhalten. Beachten Sie, dass falsche Eingaben dazu führen können, dass Sie keinen Zugriff mehr auf den IPS 1 erhalten.
Alle Änderungen auf dieser Seite werden erst nach einem Klick auf die Schaltfläche "Übernehmen" übernommen. Dabei werden die Eingaben überprüft und nur akzeptiert, wenn die Eingaben gültig sind. Im Fehlerfall wird eine Warnung inklusive der fehlerhaften Eingabe erzeugt. Mit der Schaltfläche "Verwerfen", werden alle Änderungen rückgängig gemacht, die noch nicht übernommen worden sind.
Zuweisung durch den DHCP-Server
manuelle Konfiguration
IP-Adresse: 192.168.1.201
Subnetzmaske: 255.255.255.0
Gateway: 192.168.1.1
Primärer DNS Server: 192.168.1.1
Sekundärer DNS Server: 0.0.0.0
MAC-Adresse:
Host Name:
Hintergrundfarbe: R 0 G 0 B 21
Textfarbe: R 255 G 96 B 0
Übernehmen
Verwerfen
zurück

Select "manuelle Konfiguration", enter the required settings click to button Übernehmen (apply).

—> The specified values relate to this example.
"local" IP address 192.168.1.201
Subnetmask 255.255.255.0
Gateway 192.168.1.1 ("local" IP address of the router)

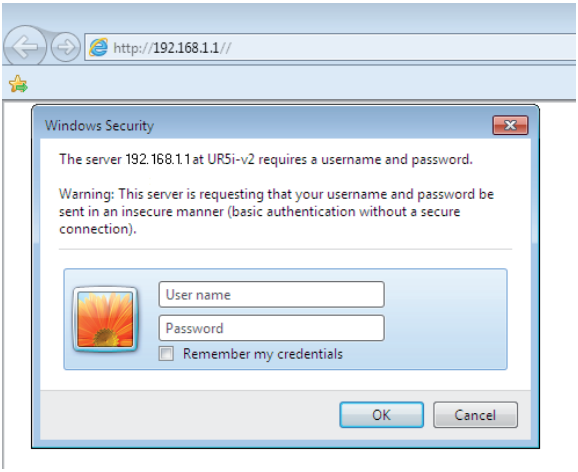
Click to button zurück in order to return to the main menu.

Click to button Benutzer/Passwort (user password).

Benutzer/Passwort ändern
Auf dieser Seite können Sie das Passwort und den Usernamen ändern. Mit einem Klick auf die "Übernehmen"- Schaltfläche wird das Password geändert. Sollten die beiden Passworteingaben nicht übereinstimmen, erscheint eine Warnung und die Eingaben werden zurückgesetzt.
Passwortüberprüfung Ein Aus
Benutzername admin
Password
Passwort wiederholen
Übernehmen
Verwerfen
zurück

Enter a user name (Benutzername) and a password (Passwort) and switch on the password request Ein, in order to prevent unauthorized access to the IPS1.
Click to button Übernehmen (apply).

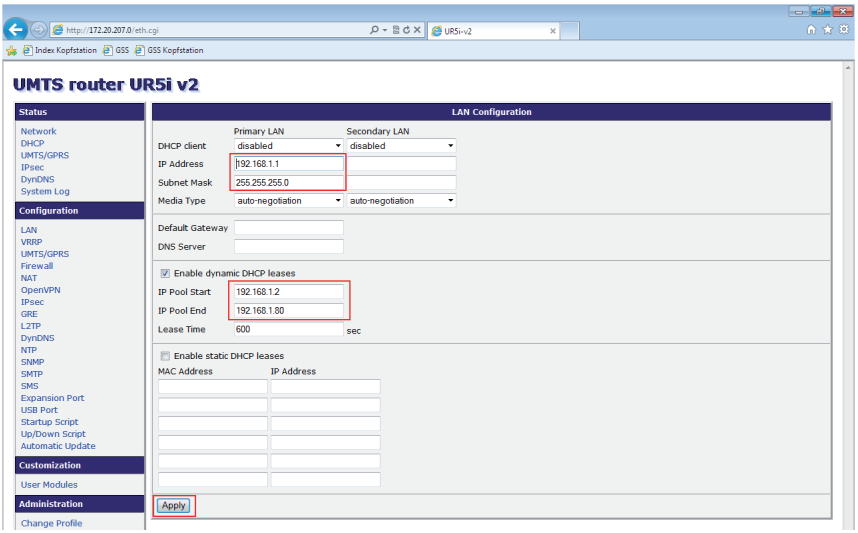
- **Configure the UMTS router UR5i v2.**
  By default UR5i is set to the static IP address 192.168.1.1, Subnetmask 255.255.255.0.
  Adjust your PC to a static IP address in the address range of the UR5i (e.g. 192.168.1.2, Subnetmask 255.255.255.0).
  Call up the web interface of the UR5i via a browser (http://192.168.1.1).


http://192.168.1.1//
Windows Security
The server 192.168.1.1 at UR5i-v2 requires a username and password.
Warning: This server is requesting that your username and password be sent in an insecure manner (basic authentication without a secure connection).
User name
Password
Remember my credentials
OK
Cancel

Enter "User name" (default is "root") and password (default is "root") for login.

—> We recommend to change the password.

LAN configuration:
Limit the address range of the IP pool of the DHCP server so, that the static IP addresses of the management system (192.168.1.200) and the IPS1 (192.168.1.201) are outside the DHCP range (menu LAN configuration, "IP Pool Start"/"IP Pool End")

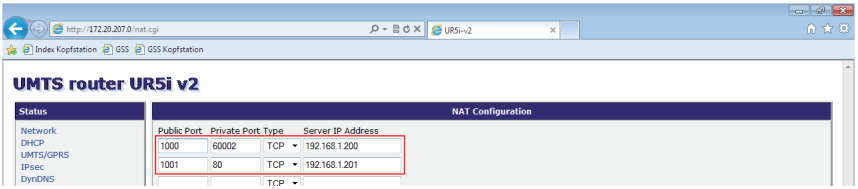


Confirm the settings with button Apply.

NAT configuration:

By default the management system is set to port 60002, IPS1 can exclusively be accessed via port 80.

Enter the following port forwardings in menu "NAT":



In column "Public Port" enter the ports needed to get "external" access to the Router (e.g. port 1000 for the management system, port 1001 for IPS1).

In column "Private Port"enter the ports, to which the "Public Ports" must be forwarded (e.g. Port 60002 for the management system, port 80 for IPS1).

—> Herein for the management system you have to enter the port, which you have entered in the Ethernet settings (page 84).

In column "Server IP Address" enter the corresponding "internal" IP addresses (e.g. 182.168.1.200 for the management system, 192.168.1.201 for IPS1).

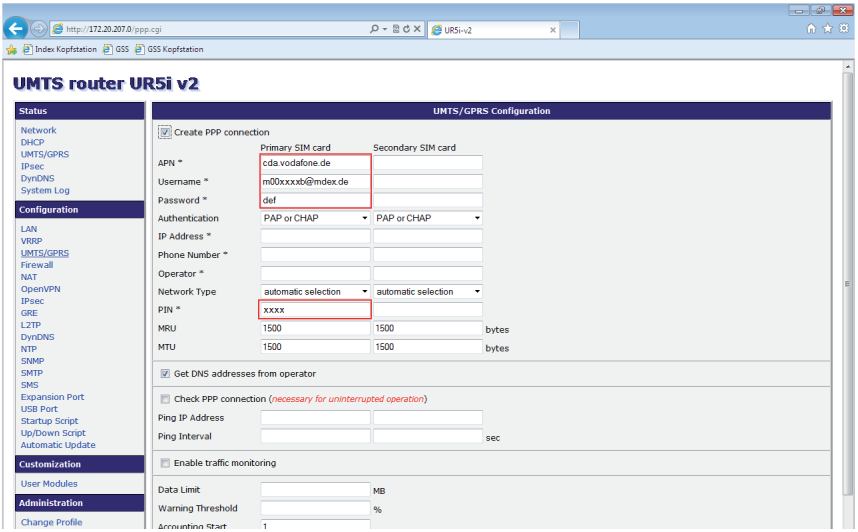
—> Herein you have to enter the IP addresses which you have assigned at the beginning of the configuration (page 132).

—> Using http://172.20.207.0:1001 ("public" IP address of the routers : port for the port forwarding to the "internal" IP address 192.168.1.201) e.g. you can get "external" access to the browser user interface of the IPS1.

Confirm the settings with button Apply.

UMTS/GPRS configuration:

In menu "UMTS/GPRS Configuration" enter the APN mobile access data from mdex as well as the pin of the SIM card of the router:



—> **IF no PIN, or a wrong PIN is entered, the SIM card will be blocked when trying to establish a connection.**

Confirm the settings with button Apply.

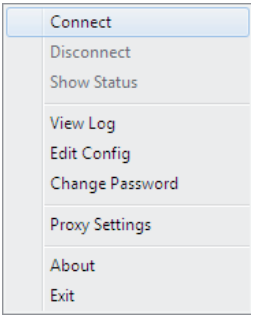
- **Connect the management system and the IPS1 to the UR5i router via LAN cables.**

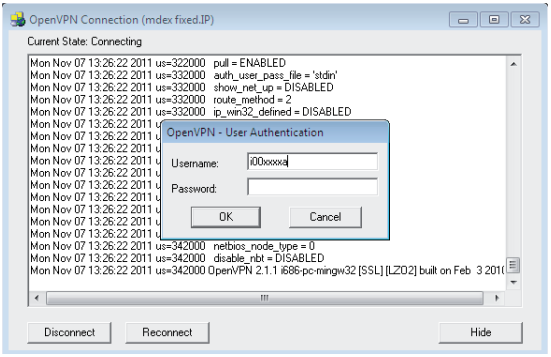
- **Instal the OpenVPN client on the PC, from which you would like to remote control the plant.**
  Together with the access data from mdex you will get a link, to download the install file of the VPN client.
  Start the file an follow the instructions of the "OpenVPN Setup Wizard".
  After a successful installation start **All Programs > OpenVPN > OpenVPN GUI** with administrator privileges.

—> In some operating system you have to start OpenVPN GUI with administrator privileges otherwise the routing to the management system resp. IPS1 does not work.
—> is shown in the information section of the task bar.

Right click the symbol and select "Connect".

is shown in the information section of the task bar, until the connection is established.



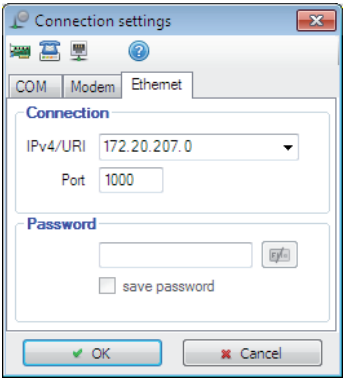

OpenVPN Connection (mdex fixed.IP)
Current State: Connecting
Mon Nov 07 13:26:22 2011 us=322000 pull = ENABLED
Mon Nov 07 13:26:22 2011 us=332000 auth_user_pass_file = 'stdin'
Mon Nov 07 13:26:22 2011 us=332000 show_net_up = DISABLED
Mon Nov 07 13:26:22 2011 us=332000 route_method = 2
Mon Nov 07 13:26:22 2011 us=332000 ip_win32_defined = DISABLED
OpenVPN - User Authentication
Username:
Password:
OK
Cancel
Mon Nov 07 13:26:22 2011 us=342000 netbios_node_type = 0
Mon Nov 07 13:26:22 2011 us=342000 disable_nbt = DISABLED
Mon Nov 07 13:26:22 2011 us=342000 OpenVPN 2.1.1 i686-pc-mingw32 [SSL] [LZO2] built on Feb 3 201
Disconnect
Reconnect
Hide

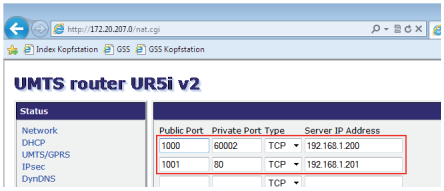
Enter the mdex OpenVPN access data.

—> If the connection is established, is shown in the information section of the task bar.
—> If the connection establishment will not work, check the "Proxy Settings" in the context menu - if necessary contact your system administrator.

- **Remote control via CCRS 1000.**
  The OpenVPN connection to the UR5i must be active ( ).
  Start the CCRS 1000.
  Click on button (establish a connection).

  Select "Ethernet" and enter the IP address, which you got from mdex for the mobile access (172.20.207.0 in the example) and – separated by a colon – the "Public Port", which you entered for the management system during configuration of the UR5i (1000 in the example).





Remote switching of IPS1

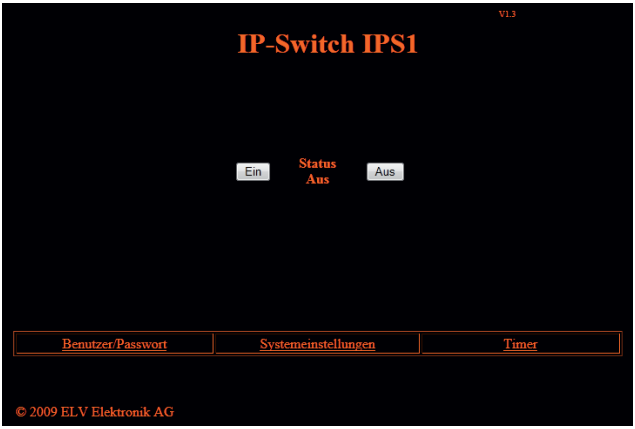
Open an Internet browser in order to get access to the web interface of the IPS1.
Enter the IP address, which you got from mdex for the mobile access (172.20.207.0 in the example) and – separated by a colon – the "Public Port", which you entered for the IPS1 during configuration of the UR5i (1001 in the example), into the address line of the browser …

http://172.20.207.0:1001

… and press the "Enter" button.
The connection to IPS1 will be established.

Windows Security
The server 172.20.207.0 at (null) requires a username and password.
Warning: This server is requesting that your username and password be sent in an insecure manner (basic authentication without a secure connection).
User name
Password
Remember my credentials
OK
Cancel

Enter the access data which you assigned during configuration of the IPS1 and click to button OK.



Via buttons Ein (on) and Aus (off) you can change the switching status of IPS1.

—> The current switching status is shown between the two buttons.

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Alterations reserved. Technical data E. & O.E.